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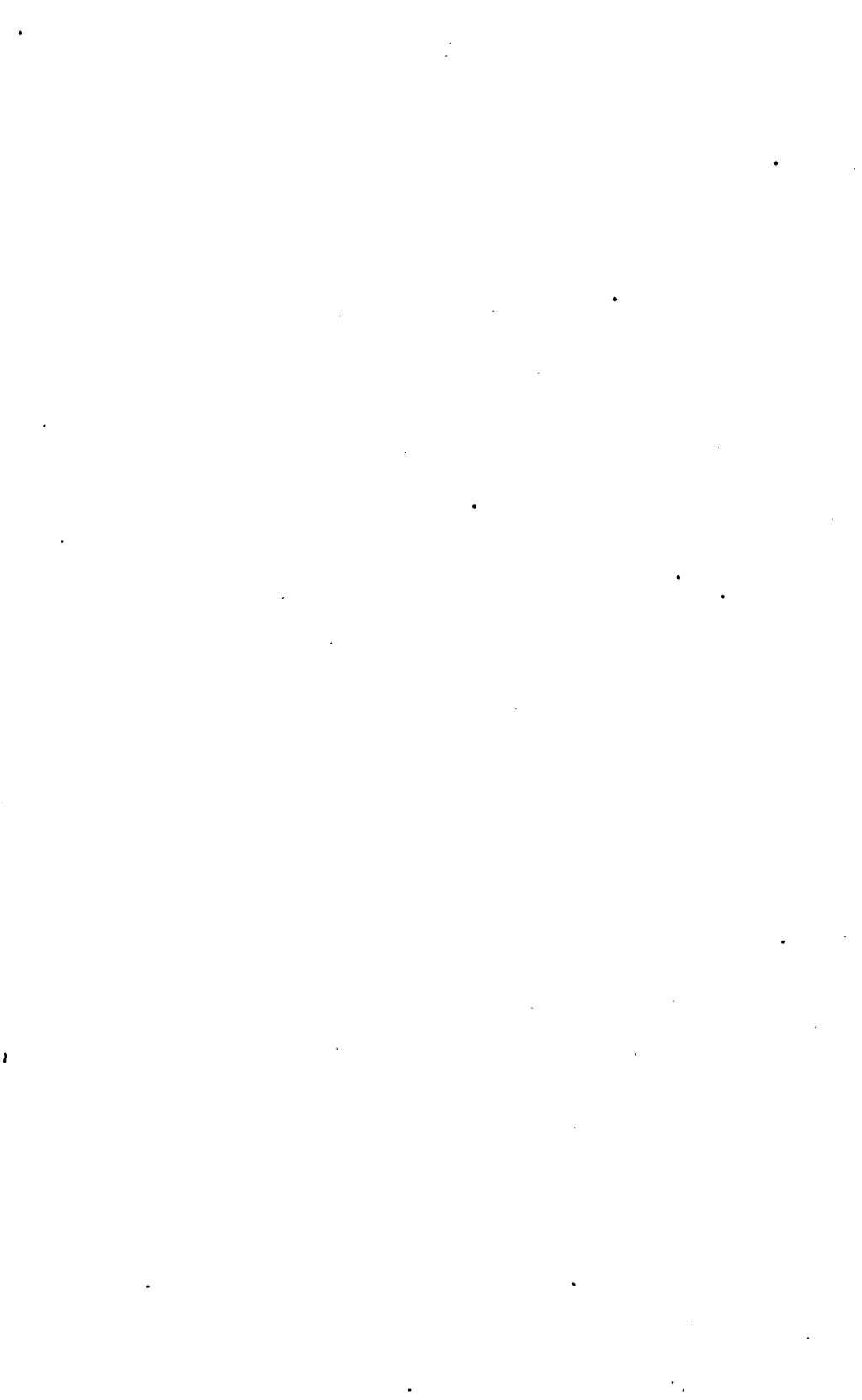
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REPORT OF THE COMMITTEE OF THE
NATIONAL COUNCIL OF EDUCATION

ON

Standards and Tests for
Measuring the Efficiency of Schools
or Systems of Schools

PRESENTED BY THE CHAIRMAN OF THE COMMITTEE

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BULLETIN OF THE BUREAU OF EDUCATION.

(Titles abstracted.)

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UNITED STATES BUREAU OF EDUCATION

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REPORT OF THE COMMITTEE OF THE
NATIONAL COUNCIL OF EDUCATION

ON

Standards and Tests for Measuring the Efficiency of Schools or Systems of Schools

PRESENTED BY THE CHAIRMAN OF THE COMMITTEE

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STANDARDS AND TESTS FOR MEASURING THE EFFICIENCY OF SCHOOLS OR SYSTEMS OF SCHOOLS.

Educators and laymen have always expressed opinions with respect to the efficiency of our schools. In recent years there has been developed, along with a refinement in the technique of investigation in education, a remarkable public interest in the attempts to evaluate our educational practice. School inquiries, investigations, or surveys have been conducted, or are planned, in a great many cities throughout the United States. In each case there is the supposition that such an inquiry or investigation will measure the efficiency of the schools. It has not always been clear, either to those making the survey, or to those who read the reports, that three distinct types of measurement have been employed, or three sets of standards or tests applied. It is possible to characterize each investigation, or each part of some of the larger surveys, by one of the three following methods of measurement—first, measurement by personal opinion; second, measurement by comparison; or third, measurement by more or less well-established standards or units.

Measurement by personal opinion is valuable in just the degree in which the person passing the judgment is, by training and experience, qualified to give an intelligent opinion. Such personal judgments have frequently suggested comparisons with other communities, and have at times, no doubt, been based upon more or less well-established standards. The chief characteristic of this type of report, however, is found in the fact that the author does not feel that it is necessary either to appeal to a painstaking comparison with other similar situations or to state the standards which he uses in passing his judgment. Often the individual who is expressing a personal opinion seeks to give dignity to his statements by saying that he speaks in terms of facts. In effect, his argument is that the situation as he sees it, and as he has described it, leads inevitably to a conclusion with respect to the strength or weakness of the school system that has come under his observation. Of course, no such appeal to facts can modify the situation. Unless careful comparisons have been instituted, or commonly accepted standards applied in passing the judgment, the opinion expressed in the light of the so-called facts which have been discovered remains simply an opinion.

Measurement by comparison is based upon the fundamental idea that the common practice is the result of the judgment of many men who have attempted to solve the same or very similar problems. In reports which have used the method of measurement by comparison, the most common practice is used as the standard to which each local situation is referred. Such comparisons have been made with regard to expenditures, the progress and classification of children through the grades of the school system, the amount of time devoted to school subjects, supervisory provision, teacher training, tenure, and the like. In the derivation of standards of efficiency, it will always be necessary to employ the comparative method. Any adequate derivation of standards will, however, involve much more than comparison. Measurement in any field is not successful merely because we are able to say that one quantity is more or less than another. It is only when we have a measuring stick which enables us to describe all of the quantities with which we deal in terms of definitely determined units that we can claim to have any adequate method of measurement.

We are only beginning to have measurement undertaken in terms of standards or units which are, or which may become, commonly recognized. Such standards will undoubtedly be developed by means of applying scientifically derived scales of measurement to many systems of schools. From such measurements it will be possible to describe accurately the accomplishment of children and to derive a series of standards which will be applicable to varying groups of children and to different social demands.

Standards of accomplishment will always be stated in terms of group measurements. For example, we will not demand that all children in a given grade be able to write with a certain speed and with a certain degree of excellence, nor that they all be able to perform a certain number of operations in arithmetic with a fixed speed. We shall, rather, measure the abilities of the group in terms of a central tendency, possibly the median or mode, and in terms of variability from this most common or median ability. The derivation of standards, and their application to school situations, does not mean that we shall attempt to make all children alike, or to secure the same product in every situation. It will be possible, however, for one who has some appreciation of statistical method to compare groups of children, either within the same school system or in separate systems of schools, with respect to any ability or quality which they may possess with even greater assurance than we have any right to have in comparing two individuals.

We may expect to develop standards or tests of efficiency in the several different fields, or with respect to the several different elements which constitute a school system. It will not be wise to

attempt to measure one element in the situation out of relation to others, since each part of a school system is not only related to but in some measure determines the efficiency of every other part. For example, we might consider the problems of business administration as distinct, and yet we know that successful business administration will determine in no small degree the efficiency of work done in classrooms. It is only when buildings are properly constructed, lighted, and ventilated, when supplies of the right sort are purchased and properly distributed, that we can expect to do satisfactory work. In like manner, the accomplishment of groups of children in the several subjects which we teach, and the number of promotions or nonpromotions, may be determined in considerable measure by the enforcement of the compulsory-education law. In any attempt to measure the efficiency of a system of schools it will therefore be necessary to include in such a survey all of the problems commonly considered under the head of business administration, educational organization, the recruiting of the teaching corps, and the accomplishment of children. It is not probable that it will ever be possible to establish a single standard or unit of measurement the application of which may be thought to determine the efficiency of a school system.

The business management of a system of schools is to be judged by the adequacy of the system of accounting and of reporting which is used, just to the degree that such records are a measure of business efficiency in other lines of human endeavor. In so far as we have commonly accepted standards for school buildings, one may judge of the efficiency of the school plant. Efficiency may further be determined by the degree to which the business management has succeeded in standardizing supplies and equipment to the end that waste is eliminated. It can not be too strongly urged that neither expenditure per unit of population nor expenditure per pupil measures the efficiency of a school system. The question is always not the amount spent, but the return secured for the money expended. The development of standards in business administration will be made possible when we have more adequate reporting in this field. Any comparative study which might lead to the development of standards of efficiency can be made only upon the basis of a large degree of uniformity in accounting and in reporting fiscal statistics.

From the standpoint of the enforcement of compulsory education, which is in effect putting children in touch with the education which we provide for them, the efficiency of a system of public education is measured by the ratio of the number of children in school to the number of children in the community who ought legally to be in attendance. If legal restrictions, control by agencies outside of the school system, or the lack of funds render impossible the enforcement of the compulsory education law, one can not charge that those who are

responsible for the administration of public education are inefficient. It is not probable that any city of considerable size can hope for efficiency in this respect without the establishment of a continuing permanent census.

Efficiency in school organization demands that children be differentiated with respect to their mental, physical, and moral capacities. It is relatively simple by physical examination to determine the need for classes for the tubercular, the blind, the deaf, and the crippled. The fact that special types of education must be provided for these several groups is easily established. It is not quite so simple to determine the adequacy of the means or methods employed in the classes in which these children are found. We may, however, expect in the light of further experience with classes for these children to develop standards as adequate as those which we apply to groups of normal children.

Children who are mentally defective can be discovered by tests which are more or less commonly accepted. The Binet-Simon tests are being applied throughout the United States for this purpose. It is probably not more difficult to discover children of superior ability, and it would seem just as legitimate to judge of the efficiency with respect to school organization of a school system in terms of the provision made for supernormal children as in terms of special classes for defectives.

Moral delinquency demands special treatment. We judge the efficiency of the organization of a school system not infrequently by the provision which is made for those who are habitually truant or who are incorrigible. We should more frequently judge of the efficiency of schools which attempt to reform the morally delinquent in terms of the later activities of the individuals placed in these special schools. We may claim to have reformed a boy or girl only when we know, because of our careful system of following up these special cases, that they do not revert to those practices which we originally sought to eliminate.

We are coming to recognize the need for a differentiated curriculum for children who have finished their elementary school course. It is not easy in the newer types of industrial, household arts, agricultural, or trade education, to determine the needs of the community nor the special aptitudes of children. Any adequate solution of the problem of vocational training will necessitate careful vocational surveys and the largest possible opportunity for the discovery of the special abilities of children. It is interesting to note that many of those who are studying the problem of vocational guidance are coming to speak more in terms of the discovery of special ability in order that adequate training may be given than in terms of places for children to work.

One of the most common tests which has been applied to school systems during recent years is found in the percentages of retardation, elimination, promotion, and nonpromotion. These statistics do not, either singly or taken all together, measure the efficiency of the school system. They are rather symptomatic. A large degree of elimination or retardation is significant mainly in showing the need for changes in curricula or in school organization, in calling attention to a lax enforcement of the compulsory education law, or in showing the need for modifications in standards employed by the school system. We shall, of course, continue to follow closely the statistics of elimination, retardation, acceleration, and promotion. Every competent administrator will introduce cumulative record cards which will enable him to trace accurately the history of all children throughout their school course. Such information will always be valuable, even indispensable, to one who would study carefully a school situation. We shall have gained greatly, however, when we learn to consider these facts as symptoms rather than as final measures of efficiency.

It has been suggested that the efficiency of schools be measured in terms of medical inspection, dental inspection and treatment, the provision for playgrounds and recreation, the satisfaction of children's needs in terms of meals and clothing, and the provision for the education of youth and adults. It is unfair to judge a school system as efficient or inefficient in terms of any one of these activities, except as the community concerned has recognized these activities as belonging to the school. If the social group has determined that these functions shall be added to those commonly belonging to the school as an institution, then it will be possible to measure the efficiency of each of these lines of endeavor by standards which we may hope to derive.

Considerable progress has been made in recent years in measuring the accomplishment of children in the subjects which are taught in our schools. The problem here is to come to recognize the necessity for group measurements and group standards. Such measurements will involve the idea of progressive increase in achievement and of central tendencies and variability within the group. Often such tests of efficiency will be most significant in comparing the units of a single school system. The work of Stone and Curtis in arithmetic, the scales for measuring the quality of merit in handwriting by Thorndike and Ayres, and the scale for measuring English composition by Hillegas, are especially noteworthy.

Possibly the most satisfactory method of measuring the efficiency of a teacher is to be found in the evaluation of her work as indicated by the growth and development of the children with whom she comes in contact. Such a method of measurement would be open to

the objection that groups of children differ greatly in capacity, and that therefore the achievements of several different groups of children during any given period would not, after all, measure the ability of the teachers who taught them. Administrative and supervisory officers constantly pass judgment upon the work of teachers and rate them without any such painstaking method as has been suggested. Any adequate scheme of measuring the efficiency of teachers must take into account those qualities which make for success, and must allow weight to each of these several qualities in proportion to their importance. Such a schedule has been prepared by Prof. E. C. Elliott, and is issued by the State Department of Education at Madison, Wis., as an "outline of a tentative scheme for the measurement of teaching efficiency."

The more we attempt to establish standards and tests the more insistent we will have to be that our practice be carefully described in the records which are made by teachers and supervisory officers. Such material will be most significant for school systems which have organized as a part of their administrative system a bureau of investigation. Indeed, the administrative or supervisory officer of the future may be expected to act largely in terms of measurements which enable him to judge accurately of the efficiency of any element or part of the school system of which he has charge. We may expect that a group of capable investigators will work under the direction of the superintendent of schools to the end that he and the community which he serves may have constantly available the most adequate information possible with respect to the efficiency of the school system.

It may not be claimed that the measurement of the several parts or elements of a school system necessarily indicates the efficiency of those charged with the administration of our schools. It may be that a school system is inefficient because a community is relatively poor, or unusually lacking in progressive leadership. Unusual facilities for the development of a most excellent system of schools may be provided by virtue of the superior intelligence and the large resources of the population of another school unit. The most significant measure of efficiency is progressive development or improvement within the system of schools measured.

Greater progress will be made in the establishment of standards and tests, and in the development of more adequate measurements of the efficiency of school systems, when we establish a committee, a board, or commission on school efficiency. It is of the utmost importance that this committee or board be representative of the most significant scholarship and of the best administrative practice known to our profession. This body should be constituted by the National Council of Education. Its functions should be as follows:

1. It should offer encouragement, expert advice, and opportunity for publication to those engaged in scientific work in the direction of the derivation of scales of measurement, in the application of such scales or units to actual school situations, or in the establishment in any other manner of standards in relation to public education.

2. It should offer expert advice with respect to the nature and scope of surveys, investigations, or inquiries to be undertaken in any part of the United States.

3. It should offer to members of our profession engaged in administrative work the opportunity to secure a scientific investigation of their systems of schools under the direction of professional experts. As the situation is at present, we have the anomaly which permits a politician, an interested book-publishing company, or a personal enemy of the chief administrative officer of a school system to attempt to secure the removal of such an officer without any adequate measure of the efficiency of the school system or the accomplishment of the man whose work is called in question. The establishment of a body of professional experts would in time render such action impossible.

For the work of a committee or board such as is contemplated in the statements made above, a liberal appropriation should be made by the National Education Association, and it is possible that further endowment should be sought in order to make possible those activities which will mean the increase in efficiency of our system of public education and the establishment of our profession.

There is appended a bibliography of 339 titles pertinent to the subject of which the report of the committee treats. This bibliography was prepared for the committee by Dr. I. L. Kandel.

G. D. STRAYER, *Chairman.*

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E. P. CUBBERLEY,

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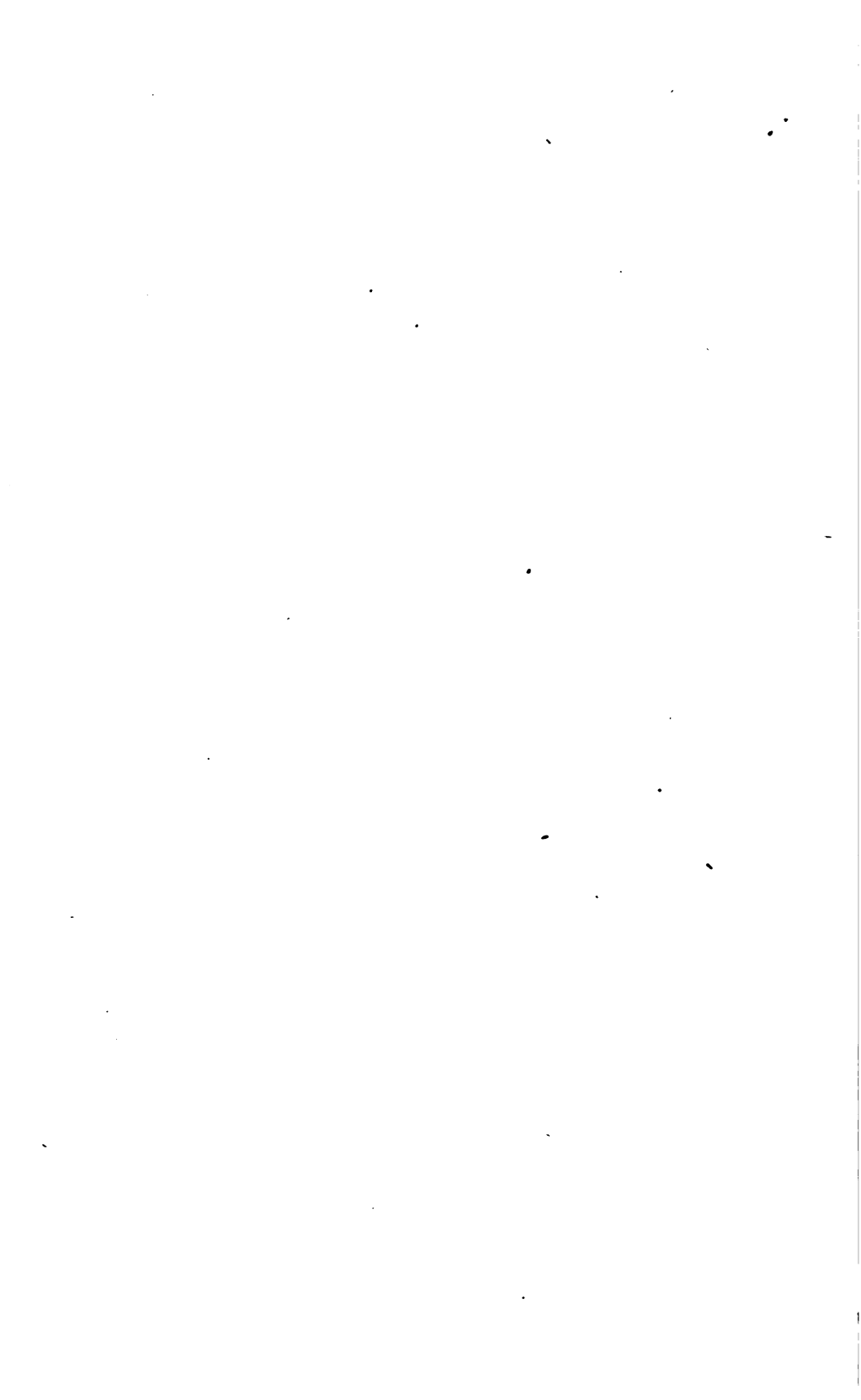
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AGRICULTURAL INSTRUCTION IN SECONDARY SCHOOLS

PAPERS READ AT THE THIRD ANNUAL
MEETING OF THE AMERICAN ASSOCIATION
FOR THE ADVANCEMENT OF
AGRICULTURAL TEACHING
ATLANTA, GA., NOVEMBER 12, 1913



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LETTER OF TRANSMITTAL.

DEPARTMENT OF THE INTERIOR,
BUREAU OF EDUCATION,
Washington, D. C., March 21, 1913.

SIR: Interest in agricultural education continues to increase. The attempt to teach agriculture is no longer confined to the agricultural college and special agricultural school. In all parts of the country the attempt is made with more or less success in public high schools and to some extent in the elementary schools. Methods of teaching the important facts and the elementary principles of agriculture are discussed in the meetings of most of our educational associations. There is a large demand from teachers and school officers for any printed matter on this subject that will help them in determining what to teach, and how to teach it, and how to organize schools and adjust courses of study so as to get the best results from the new studies without losing the best in the old. There is also an earnest demand for helpful advice in regard to the preparation of teachers of agriculture in schools of a grade lower than that of the college. The papers read before the American Association for the Advancement of Agricultural Teaching at its meeting in Atlanta, Ga., November 12, 1912, contained much valuable material for those interested in this subject. For this reason they are submitted herewith for publication as a bulletin of the Bureau of Education.

Respectfully submitted.

P. P. CLAXTON,
Commissioner.

The SECRETARY OF THE INTERIOR.

AGRICULTURAL INSTRUCTION IN SECONDARY SCHOOLS.

I. THE OPPORTUNITY AND RESPONSIBILITY FOR THE PREPARATION OF TEACHERS OF AGRICULTURE.

(a) BY AGRICULTURAL COLLEGES IN THEIR REGULAR COURSES AND CLASSES.

H. L. RUSSELL, University of Wisconsin.

The primary question is, What should be the preparation which is given teachers who are going to present the subject of agriculture in the public-school system?

There are three points, in my judgment, which should be emphasized in connection with this matter:

- (1) The acquisition of the subject matter by the student.
- (2) The mode of imparting the information necessary in connection with the course.
- (3) The desirability of having the student consciously choose his course sufficiently early, so as to perfect his training for teaching work.

Relative to the acquisition of the subject matter, in my judgment this work can better be performed in the regular courses of an agricultural college than is possible in special courses designed exclusively for students of this class.

Successful teaching of agriculture requires thorough knowledge, not only of the practical side, but of the fundamental and theoretical aspects which underlie the subject. These are the same, whether a student is going to teach the subject or practice. The student who is to become a teacher of medicine must carry on the dissection work, laboratory work, or other class work in a manner comparable to that which would obtain if he was to become a practitioner of medicine. It would be an unnecessary waste of resources to duplicate the courses which are designed to present the subject matter so that the same may be most readily and perfectly acquired by the student.

With reference to the second topic, the mode of imparting the information which has been derived from the first group of courses constitutes the pedagogics of the subject, and should be specifically taught to the student in a professional course on teaching. It is in this realm that the main work of the department of agricultural education should be developed. There are good and bad ways in which

teaching may be carried on, and it is quite as important for the student to know from direct experience some of the poor and undesirable methods in which the subject may be presented as to know the most approved standards for imparting such information. Naturally, this work is of a technical character and constitutes the professional part of the training of the teacher; consequently, such courses must of necessity be organized on a separate basis from the regular classes of the institution.

If the profession of teaching is going to be anything more than a makeshift, or a stepping stone to some other vocation, it is manifestly desirable that the student consciously choose his course sufficiently early, so that he may perfect his training in this direction so far as it may be desirable for him so to do.

The time is perhaps already here in which we should formulate a more or less definite course of study designed to train the student in this direction. No field in agricultural development is going to offer a wider opportunity than that which just now obtains with reference to the training of teachers, and it is highly desirable that students entering this avenue of activity should consciously prepare for this work as far as possible. To do this, a student should secure a broad foundation rather than specialize in any one phase of agricultural development.

The great majority of our agricultural students in the upper years of their course specialize in live stock, agronomy, horticulture, etc., throwing the major part of their energies into the prosecution of work in their chosen line, together with cognate subjects.

With reference to the student who contemplates entering the profession of teaching, this course may perhaps not be the most advisable for him to follow. It is desirable for him to get a general working knowledge of the various phases of agricultural development. If he is required to elect a major line, this could well be taken in the pedagogical aspect of the subject in which his course in agricultural education could be correlated with those in the general field of education, leaving a considerable time of his course open in which he can pursue the general informative courses in agriculture, together with the fundamental sciences on which agricultural knowledge is based.

(b) BY AGRICULTURAL COLLEGES IN SPECIAL COURSES AND CLASSES ORGANIZED FOR THIS WORK.

KENYON L. BUTTERFIELD, Amherst, Mass.

I assume that the agricultural colleges will be called upon to prepare teachers of agriculture for agricultural departments of high schools, to prepare principals and teachers of agriculture in agricultural high schools, teachers of agriculture in normal schools, and members

of the faculty of agricultural colleges. This list excludes the public-school teachers who give school garden work or elementary agriculture, and whose training ordinarily would be received at the normal schools.

As a rule it is desirable that teachers of agriculture should be prepared through regular college courses and classes at the agricultural college. In other words, it is to be hoped that such teachers will have taken a full college course in agriculture in special preparation for the teaching of the subject. But for a long time to come it will be necessary to supplement this training by special courses and classes. These special courses will accommodate teachers already in service. To some degree, teachers of elementary agriculture and school garden work will find special courses at the agricultural college of the greatest service. Teachers of science in public schools, teachers of agriculture in public high schools, the younger teachers in agricultural schools, and frequently some of the younger teachers in our agricultural colleges will find it desirable, and even necessary, to spend some time at the agricultural college in supplementary work along agricultural lines.

In general there are three types of work to be offered by the agricultural colleges in special courses and classes:

1. Courses in technical agriculture. I am inclined to think that for this special work all of the groups mentioned will desire to pursue technical work rather than to study teaching methods. If a teacher has had a fair normal training, the particular gain of coming to an agricultural college for a special course is to get into the agricultural atmosphere and to sit under the instruction of experts in scientific and practical agriculture.

2. However, this study of agriculture should be supplemented by practical fieldwork, which is designed to teach the use of land and the handling of stock, as, for example, poultry or bees. In other words, these teachers want to come into very close touch with the problem of manipulation of material. In a certain sense this is a study of teaching methods, but it is a method of teaching that is vital and not formal.

3. The problems of community building are also important, because all of these groups of teachers, especially those employed in agricultural departments of high schools and in agricultural high schools, should be real community leaders and should attempt to relate the school in the most vital way to the problems of the community, both industrial and social. Now, some study of the economic and social phases of rural life is important.

These three groups of work are, in my judgment, most likely to meet the needs of teachers of agriculture already in service who come to an agricultural college for supplementary work.

The organization of courses depends entirely upon the classes of people who come for the work and upon the facilities of the institution. In general there would be three groups:

1. A one-year special course in which the regular courses are used to a certain extent, but in which the subjects are so organized that the course takes on all the characteristics of a special course. This course will fit the needs of normal-school graduates who have had very little agriculture and the teachers of agriculture in high schools whose training has been largely in the sciences rather than in agriculture. Undoubtedly also there will soon be need of offering a year of graduate study in professional agricultural teaching work, even for graduates of agricultural colleges who desire to continue in the teaching profession.

2. Doubtless for some time to come the main reliance in special courses and classes will be the summer school of agriculture. Practically all of our agricultural colleges have such a school, and it is here that the larger number of students will resort.

3. It is possible that correspondence courses in agriculture and in agricultural education may be found useful for teachers in service who wish to supplement summer school with continued reading and study throughout the year.

There is another sense in which the word "special" may be applied in this discussion; Dean Russell suggested the question: Is it desirable to organize special courses for the regular students of agricultural education who follow a four-year course? Undoubtedly we must face this question at our agricultural colleges. Some of our teachers of agricultural pedagogy hold that existing college courses in science—say, in chemistry, for example—do not meet the need of the prospective teacher who must handle chemistry as a subject for the pupil in the agricultural high school in an entirely different way from its conventional method of presentation to the college student. The conventional college method is that of analysis, and the teaching is logical and formal. The method by which the adolescent learns is concrete and objective. Now, our problem is: Shall we organize within the college special courses in chemistry or in biology which bring the material of the subject together in this concrete and objective way, in order that the prospective teacher may the better learn how to present this subject when he comes to teach in the agricultural high school? Personally I think we must go very slowly at this point, not only because of legitimate questions concerning the method, but also because of administrative difficulties, such as the fact that only a small proportion of prospective teachers of agriculture are firm in their vocational intent during the early years of their college course when they must study the sciences, and also because of the large expense

involved in organizing separate courses. At the same time, we can not ignore the question.

It is evident that while we should lay special stress upon the preparation of teachers of agriculture through regular college courses and classes, we must for a long time to come, perhaps indefinitely, make provision for special courses and classes in order that the teachers already in service may gain the benefits that come from residence at the agricultural college.

II. THE FIRST YEAR'S WORK IN AGRICULTURE IN THE HIGH SCHOOL.

W. G. HUMMEL, Berkeley, Cal.

That wise selection and proper presentation of the agricultural work of the first high-school year is of supreme importance is unquestioned. On this depends the success of the work which is to follow. Though elementary, the work must be scientific and thorough in its presentation of selected topics. It must include instruction in the fundamental principles of agriculture and must emphasize the scientific basis of the industry. It must be both practical agriculture and sound science. In addition, the materials of the course should be so selected and organized as to present, as a whole, a well-balanced unit of agricultural study.

Present conditions as to the teaching of first-year agriculture in the high school can hardly be called satisfactory. Some excellent courses are being given, it is true, but there are more poor ones. Even where courses are good in themselves, they are frequently quite unlike first-year courses in any other high school. This in turn necessitates differences in the agricultural courses of later years, and makes difficult the transfer of credits for students from the agricultural department of one school to that of another. It also tends to delay the giving of just university credit for high-school work in agriculture.

Of the many poor first-year agricultural courses now being given, some are due to the fact that so many unexpert teachers, though perhaps well informed agriculturally and scientifically, lose sight of the great purpose of the beginning course and the psychologic and other reasons which should determine its materials and methods. Looking only to names, they choose from the multitude of names applied to first-year work that which appeals to them most, such as farm crops, soils, etc., and start a course under that name. And though excellent beginning courses are being given in many parts of the country under such names, yet in the hands of teachers copying the name rather than the materials, such a course frequently becomes too highly specialized for a beginning course and fails to lay the desired foundation for the work of later years. Or, going to the other extreme, teachers

sometimes give preparatory courses so general that they take up animal life, plant life, farm mechanics, and farm management, thus including so much that the course fails to teach any one thing well. It fails to fix important basic principles and degenerates to a mere collection of agricultural facts, the scientific foundation and principles of which are little understood.

It is evident, then, that we need better agricultural courses in the first year of the high school. We need a more careful outlining of the work. We need greater uniformity in the content and nomenclature of the work as given in different schools. We need a better balance between first-year instruction in practical agriculture and in the basic scientific facts on which agriculture rests.

Before attempting to say how this is to be secured, let us review briefly the science situation in the high school, since successful agricultural instruction is so closely related to it.

That the teaching of the physical and the biological sciences in the high school has been unsatisfactory in many ways has been admitted for years. The educational results of high-school science are neither all that was hoped or predicted when it was introduced into the high-school curriculum. In many schools the number of students electing such work is falling off. The materials used are criticized as not sufficiently related to the life and needs of students. The results attained are said to be too often unsatisfactory both as to the knowledge gained by the student and in the acquiring of a proper attitude toward scientific work.

Many remedies have been proposed, such as a rearrangement of the science courses, more careful selection of the first-year science subjects, the introduction of many applications of science in instruction, and so on. The science work has undoubtedly been improved by the adoption of these suggestions, but observation and experience show that they have not brought about all the improvement desired. Even when the science work is carefully arranged and many of its applications introduced, it too frequently fails to hold the attention of pupils and to secure the educational results desired. With first-year pupils especially, the science work has failed to prove attractive or beneficial.

The reason most commonly given for this is that, though for the fullest understanding of any one science there must be an accompanying knowledge of other sciences, yet in the high school the sciences have all been pigeonholed in various semesters or years and unrelated to each other. It is also recognized that another thing prejudicial to the full success of science teaching in the high school lies in the fact that the first-year pupil lacks sufficient apperceptive basis for any special course dealing with the theories and problems of pure science. He is, therefore, apt to be repelled by such work. Even when the first-

year work includes many applications of the science studied to everyday life, it is apt to prove unattractive, for the pupil lacks sufficient information to fully appreciate or understand many of these applications until he has had something of other sciences. Yet the teacher can not take time, in a special science course, such as botany, for example—crowded with materials to be gone over in a limited time—to introduce and demonstrate and explain chemical and other facts which the pupil needs to know in order to understand fully certain applications of botanical facts. Moreover, first-year students are naturally what we may call superficial. Their interests spread over a large area, but do not go very deeply. They are interested in the many wonderful and fascinating things in the world about them and wish to understand them. They like to experiment, to see demonstrations. They like studies related to life. But work limited to a single special science, and but vaguely related to life, does not appeal to them.

It seems, then, that no one of the special high-school sciences proves attractive to first-year pupils or gives them a view of as broad a field as is desirable. No one subject alone, experience indicates, so stimulates interest and engages attention as would a wise selection from the whole field of scientific knowledge.

The suggestion was therefore made by schoolmen interested in the improvement of the high-school science work, as long as a decade ago, that the first-year science work might well be a general introduction to science, having its roots in all the high-school sciences. It could thus, it was argued, be given variety and made full of demonstrations and laboratory experiments which would appeal to the interest, arouse the enthusiasm, and increase the desire of the student for more and deeper knowledge. A background would thus be given for the different scientific studies; they could be related to the pupil's environment and to each other; and students would be prepared for the more formal and specialized study of the various branches of high-school science in the following year.

Many other excellent arguments were also given for the general-science course for the first high-school year. Schoolmen quickly recognized the justice of the arguments, and general-science courses were introduced in many localities. But though the purpose of the courses was admirable, and the advantages apparent, it was found that there was danger of giving disconnected lessons, and, unless the teacher was a particularly strong one, of not getting the desired results.

The work was found to have a tendency to be unbalanced, disconnected, and too much influenced by the teacher's special science interests. Even in the general-science course there was found to be not enough emphasis of the openness of the world of science. There

was need of a connecting thread which should give greater unity and balance and purpose to the work in the minds of both teacher and students.

A few agriculturists and science men then began to feel that the solution of both the agricultural and the science problems of the first high-school year lies in the agricultural general-science course. This was suggested as early as September, 1910, in an editorial in the Experiment Station Record.

By this combination of work the usefulness of scientific knowledge is emphasized. Such a course not only presents and teaches certain scientific facts, but it provides values for them. It gives an economic, as well as a cultural, motive for further scientific study. It relates the scientific facts taught to the life of man, to certain of his fundamental needs, and to the problems of a basic industry. The agricultural work furnishes a core about which are grouped in a vital way the fundamental conceptions of elementary general science. By the agricultural work the facts of general science are related and the course is given balance and purpose.

With regard to agriculture, a combination of agricultural and general-science work promises an equally good effect. The science work explains and dignifies the agricultural work. It early gives some familiarity with scientific methods and emphasizes the importance of investigational work and evidence.

Where a four-year agricultural course is given in the high school the pupil must in some way get considerable information concerning the elements of various sciences during the first high-school year. Special separate courses in different sciences during the first year will not serve the purpose, for he has not enough time to take several of them. He must either get them in a beginning agricultural class or in a general-science course. Why not combine the two? is a natural question. If a good beginning agriculture course can be arranged which is at the same time a good general-science course, the advantages are apparent.

Finally, it is rightly argued that for such students as do not go on with either agricultural or pure science studies, such a course serves as a valuable culture course. So much of agriculture as is embraced in this first-year course is needed by every boy and girl as a matter of general intelligence, information, and culture. Whatever their station in life and whatever their occupation, they should know at least this much as to the fundamental industry through which the materials of their daily food supply are produced. The agricultural general-science course gives an opportunity for the large number of students who do not go beyond the first year or so of the high school to get at least a glimpse into the great field of science and an introduction to its methods. To those students who do go on through the

high school, and perhaps to college, but who are specializing in the classics, or modern languages, or some subject other than science, it gives a survey of the elementary facts of several sciences, instead of limiting them to a scant semester or two of a single science.

Thus, it is argued, by using an agricultural general-science course we not only serve the educational purposes of first-year agriculture and first-year science to the best advantage, but we economize time, money, and effort. The same beginning course may be given to all first-year students, whatever studies they are to take later. Economy of time, materials, and teaching energy thus accompanies the most satisfactory form of instruction.

Such is the theory. And it is a reasonable one. But in actual practice, where agricultural general-science courses have been tried, some have been very unsatisfactory.

This has in most cases been due to no fault in the agricultural general-science idea, but in the way it has been worked out. Agriculture and general science have been combined, but with a poorly prepared outline. The agricultural basis for the work has itself lacked unity. The agricultural connecting thread has been weak and disconnected. The materials of the course have been too heterogeneous. There has not been a proper balance between the agricultural and the general-science phases of the work.

That an agricultural general-science course which satisfies all the demands of both first-year agriculture and first-year science is possible there is no doubt. That such a course may be so organized and presented that it shall have all the advantages claimed for it, without the weaknesses which have in most cases accompanied it, is equally true.

In California we believe that we have worked out an agricultural general-science course which does give both a suitable foundation for the agricultural work of later years and a proper introduction to the work of the special science courses of the high school.¹ In it, practical agriculture and scientific facts are constantly paralleled and balanced. Elementary facts of every high-school science are taught, and the sciences are constantly related one to the other. The outline of the work is adapted to practically any locality or high school. While definite, it permits great freedom in treatment to suit local conditions.

As a general outline for the work, the secondary agronomy outline given in Office of Experiment Stations Circular 77 has been adopted, but with many modifications. Though the circular recommends that

¹ The course was first worked out by the writer and tested at the Oxnard high school, in 1909-10, a year before the publication of the editorial in the Experiment Station Record on first-year agriculture and general science. During the year 1910-11 it was still further improved, and tested by the writer at the Fresno (Cal.) high school. Since that time a number of California high schools have inaugurated courses modeled along the same lines, with satisfactory results.

the work of this outline be preceded by a botany course, this is neither necessary nor desirable, as it is used in the agricultural general-science work.

The outline was chosen as a basis for the work because it deals largely with plant growth and development. Since the growing of plants is the basis of agriculture, the study of plant life should naturally precede other agricultural study. The materials of first-year agricultural work, whether intended primarily as a foundation for the work which is to follow or merely as a unit of beginning agriculture, should center about the growth and development of plants and the study of their environment.

Even though we assume what is, though desirable, not always the case—that elementary agriculture has been taught in the grades either as agriculture or under the guise of nature study—yet a more thorough, scientific study of plant life and growth should be given during the first year of the high school than is possible in the elementary or grammar grades, with their limited equipment and inexperienced instructors. This is desirable not only because of the better equipment available in both the high-school laboratories and library, and the consequent clearer bringing out of the scientific basis of agriculture, but because of the possibility of greater thoroughness, through more frequent and longer recitation periods and the improved grade of instruction possible where the agricultural work is given by a trained scientific agriculturist.

I believe that the first-year work should be limited to plant growth and environment, omitting all animal study, except where directly connected with the plant study, as, for example, some study of insects as repressive agencies and as aids in the fertilization of flowers, study of the earthworm and its work in soil formation, and so on. Only the most cursory attention should be given to farm implements; farm management, general horticulture, etc., must be almost ignored; for by thus limiting the first-year work entirely to the study of plant growth and environment, we are enabled to do more thorough work and to secure a better foundation for later courses.

I do not believe in the scattering of attention and energies so common in first-year work. There is abundant material and enough variety in the study of plants, of how they live and grow, of their struggle for existence, of the effect of the various environmental influences about them upon their development and crop yield, when this is accompanied, as it should be, by abundant field practicums, trips, and the growing of gardens or special crops.

But though the limiting of first-year agricultural work to a study of plant growth, development, and environment seems advisable, yet this does not mean that only purely agricultural and botanical facts shall be taught in the course. An outline for first-year agriculture,

based on plant life, may also furnish an ideal outline for general science work, giving opportunity for the teaching of the elementary facts and principles of geology, physics, chemistry, zoology, entomology, and physiography, as well as of botany, and while connecting and relating these sciences, preserving a suitable balance between them.

To show more clearly how such a first-year agricultural course may be made to serve the purposes indicated, I have prepared for a book now in press ¹ an outline showing the arrangement of work as used now in a number of California high schools. This outline is divided into three parts, the first of which shows the modifications made in the agronomy outline in Office of Experiment Stations Circular 77, before mentioned, and, as elaborated, representing the agricultural aspect of the work. According to this outline, the composition of the plant is first taken up, and later, in order, plant structure, physiology, heredity, and environment, including light and heat, air, moisture, the soil, plant food, repressive agencies, etc.—all from the point of view of the agriculturist and practical farmer. The second part of the outline is made up of suggestions as to scientific facts and principles which may be given in connection with the course; that is, it represents the general-science aspect of the course. And the third part consists of suggestions as to experimental work in the laboratory and field, class demonstrations by the instructor, field trips, etc. The modifications in part one, and all of the second and third parts of the outline, were worked out, as has been said, in giving a first-year agricultural course in the high school, and the materials indicated were tested with different classes with very satisfactory results.

The work of each of the three parts of the outline may be compared to a strand of a rope—the three strands joining to form a strong, continuous whole. Each strand gives strength to and derives strength from the others. Each is of equal importance and equal dependence.

That this arrangement of work offers abundant opportunities for the study of plant growth, development, environment, and improvement, from the agricultural viewpoint, has been proved.

A wealth of interesting laboratory and field work is made possible by the topics of the course, and the work is such that it promises both a firm foundation for future work and a sure appeal to students' interests. Though at first thought the outline may seem to begin with topics beyond the ready comprehension of first-year high-school pupils, yet experience has proved that, treated in the right way, the essential facts as to plant composition and structure are readily understood by pupils of this grade. The eagerness and quick understanding which first-year pupils bring to a simple, clear, yet thoroughly scien-

¹ Hummel, W. G., and Hummel, B. R.: Materials and methods in high-school agriculture.

tific treatment of these and other topics, such as organic evolution, the struggle for existence, problems of plant improvement, etc., is most surprising to those who have had no experience in teaching them.

The rich opportunities offered for general science work are also evident. In studying plant composition, physical and chemical changes must be explained; the characteristics of the elements necessary for plants, their occurrence, preparation, properties, and importance should be brought out. The composition of water, its form and physical properties, may be taken up when discussing the water content of plants. The indestructibility of matter, the general topic of combustion, and many other facts of physics and chemistry may also be presented at this time.

In studying plant structure the study of the vegetative and the reproductive organs of the plant, the parts of a flower and the relation of certain insects to fertilization are subjects which crowd to the fore.

Plant physiology brings up the movement of plant juices, the joint action of physical and chemical agents, and a comparison of plant and animal physiology.

In studying plant heredity, organic evolution and the theory of descent may be taken up to any desired extent. The factors in organic evolution, natural selection, artificial selection, isolation, the theories of De Vries, Mendel, etc., offer a wealth of material. And examples of improvement in plants and study of typical illustrations add interest and vitality to it all.

Plant environment brings in a study of heat and light in an elementary way, and perhaps of color as well. The thermometer will also be studied at this time. Moisture as a part of the plant's environment brings up the subject of the mechanics of liquids, capillarity, and surface tension. The air as a part of the environment makes it necessary to study the atmosphere, the mechanics of gases, and the barometer. The study of plant foods introduces the composition of soils, plant food obtained from the air, from soils, and from fertilizers. Soil study, as a part of the study of plant environment, brings up the question of how soils are made, the chemical and physical properties of soils, agricultural geology, the geological study of soils, etc.

The study of the repressive agencies with which plants have to contend develops many scientific facts. Entomology must yield us information concerning the life history of injurious insects, their structure and development, collecting, classifying, etc. Bacteriology gives us information concerning certain plant diseases. It is necessary for organic evolution to explain plant competition and the struggle for existence. Physiography comes forward to explain climate as related to agriculture, the daily weather map, winds, the course of storms, etc. And chemistry must give us tests for soil acids and alkalies, and information as to neutralizing agents.

In giving the course, two full periods per day should be allotted to the work. Yet even with two daily periods it may not be possible to cover as much ground as is desirable. Time may, however, be economized by increasing the number of demonstrations by the instructor or by individual pupils. Yet to secure the best results a generous number of exercises and practicums must of course be performed by each member of the class.

The class time may be divided between laboratory, class, and field work as seems best, though not less than one-third of the time should be given to practicum work of one kind or another. It is recommended that no textbook be required, since none at present available is adapted to the work. Several copies of some of the better high-school manuals should, however, be provided for class use, and the library equipment should include a wide range of agricultural books and bulletins dealing with the topics of the course.

The equipment should include, wherever possible, a greenhouse, or lath house, or both, for plant propagation and certain other work. Many of the materials and some of the apparatus of the biology, botany, chemistry, physics, and other science departments of the high school, together with some special agricultural equipment, as tools for gardening, soil sieves, soil thermometers, and so on, must also be provided. Much use can profitably be made of a lantern in connection with the lecture work, for illustrative purposes, but this is not counted as a part of the special equipment for this course, since it is used quite as much or more for many other high-school courses. Farms, local nurseries, etc., of course furnish much valuable illustrative material, as does also a school agricultural exhibit, after agricultural courses have gotten well under way and collections have been made. Sufficient land for gardens and demonstration plats should also be available in connection with the school. However, by utilizing home plats in individual home project work, the amount of school land necessary may be greatly reduced.

It will obviously be found impossible to treat in much detail the scientific facts and principles brought up in following out the general science aspect of the course, in addition to doing practical agricultural work. Such of them as seem most needed by the class in connection with present or as a preparation for future work should be studied in a thorough, if elementary, way, but the practical agricultural phases of the work and the attendant practicums and laboratory work must overbalance the purely scientific aspect of the work, and the agricultural value of a particular fact or experiment must be the guiding principle in the selection of the materials of the course.

Yet even the treatment of the strictly agricultural topics must necessarily be greatly limited. Only the fundamental principles and basic facts can be taken up under each topic. A general understand-

ing of the processes of plant growth and the conditions of its environment, together with an appreciation of the scientific basis underlying them, some little knowledge of a few special crops, a fair amount of deftness in laboratory and other practical exercises, ready and accurate observations, the formation of right ideas as to agriculture and country life, eagerness for future study of those subjects which help us to understand our environment, and preparation for the special work of science, domestic science, or more advanced agriculture—these such a course does give, and this is as much as should be expected from it.

III. WHAT RELATION SHOULD EXIST BETWEEN THE EXPERIMENT STATIONS AND THE SECONDARY SCHOOLS OF AGRICULTURE?

President A. M. SOULE, Athens, Ga.

The primary function of a secondary school is that of teaching. It is the workshop into which the youth from the public school comes to receive, in many instances, all the instruction possible before entering upon the exacting duties of life. Any institution upon which such a grave responsibility rests must ever keep in view the central reason for its existence, and emphasize and elaborate upon its scheme of instruction so as to give it something of cultural value, a broad vocational basis for service, and an adaptability to environmental conditions.

In order that the best teaching may be done, it is necessary from the modern point of view that an exposition of the fundamental principles or theories of a subject be made in the classroom, the applications of the classroom facts illustrated and exemplified in the laboratory, and their utility in practice demonstrated in the field or the workshop. To some this may appear altogether idealistic, yet it is possible for many of our secondary schools to attain this plane of instruction with infinite benefit to themselves and an entire transformation of the viewpoint of the students which they graduate. Any secondary school, therefore, especially where it attempts to emphasize vocational subjects, must have efficient laboratory facilities and equipment and a shop and farm in which to illustrate and bring home in the most emphatic manner possible the final purpose intended to be conveyed by the courses of instruction offered.

Provided the institution has the equipment indicated, it will immediately appear to many that it should take up experimental work. Those who advocate this probably have no very clear conception of what constitutes an experiment, much less an appreciation of what is meant by the word research in the limited application this word

has from the standpoint of the scientist. The facilities indicated above could not be construed as offering an opportunity for carrying on research of a high order or which might be correctly recognized as of an experimental character. While there have been thousands of so-called experiments made in the United States, most of these would probably fall into the class of simple demonstrations or illustrations of principles or facts already known. Research is something exceedingly difficult to define. There are few men capable of organizing and directing it, and those who have achieved the greatest success have been afforded means from State or philanthropic sources which have practically enabled the savant to withdraw himself into a specialized atmosphere and devote his energy to the problem selected for investigation.

At the present time, in my personal judgment, the secondary schools are not prepared and should not undertake experimental or research work. From this it should not be concluded that no effort should be made to develop the minds of the boys and girls and point out to them by demonstrations the possibilities which experimental investigation and research offer the competently trained individual. To this end it would be well for every secondary school to endeavor to carry on a variety of experimental demonstrations. These may properly fall within four classes:

(A) Such simple experiments as are calculated to illustrate the principles of the various courses of instruction. For instance, if a boy be required to test the milk from cows for a sufficient length of time to illustrate the principle of individuality in animals, he will be infinitely more impressed and developed by this experience than through months of classroom instruction alone. Tests of this kind are of the utmost importance to the student, and they should be encouraged as much as possible.

(B) Demonstrations of educational value to the community should be inaugurated. They will of course be useful to the school, for every school, to be successful, must have a clientele of its own, and it should be the object and purpose of its board of trustees and teachers to bring it as intimately in touch with its adult constituency as possible. A good demonstration to organize in a rural community would be one setting forth the effects of seed selection with such crops as corn and cotton. It would cost very little to do some work of this character, and yet its results would be highly beneficial to all the interests concerned.

(C) Every school should attempt to bring new facts to the attention of its student body and its home community. Science is now making such revolutionary progress that the truth of to-day is disproved to-morrow, while new principles of practice as applied to mechanics or agriculture are found out almost daily. The interest

of all is greatly stimulated by constant touch with the leaders in all fields of scientific activity, and therefore what may be termed the extension experiment should be emphasized whenever possible. For instance, a test might be undertaken in a given community to show the importance and economy of applying calcium nitrate as compared with the forms of nitrogen which have previously been used for fertilizing purposes.

(D) Cooperative experimental work with the State experiment station may be carried on in some instances to advantage. This work does not originate in the school, but is intended to show the students and the people of the locality the benefits to be derived from modifying the practices followed in some respects. For instance, in one State with which the writer is acquainted there are a number of secondary schools. These schools are located on land varying widely in type. The State uses considerable quantities of commercial fertilizer. The college of agriculture in this State is engaged in cooperation with other agencies in carrying on a physical-chemical soil survey, so that the deficiencies of these various type soils may be ascertained, supplementary fertilizers required determined with some degree of accuracy, and the best methods of crop rotation calculated to build up these soils established. This is a most important constructive piece of work. Carrying it on in association with these schools is a matter of momentous concern, not only to the boys and girls, but to the people in the counties contiguous to the secondary schools in question. This character of work, from one point of view, may be regarded as of an experimental nature and involving in some respects the principles of a research investigation. Yet in its larger applications it is intensely practical, and the schools in question would in the opinion of the writer be justified in devoting some of their energy and a small amount of their resources to the furtherance of a cooperative project of this character. The difference between this kind of work, however, and the demonstrations referred to above lies in the fact that it has been conceived on a State-wide basis, contains an element of true research, and is presumably directed by men who have opportunities and facilities at their command which a secondary school can hardly hope to enjoy for many years to come. The school of itself could therefore not well undertake work of this character with satisfaction, and yet an investigation of this type is entirely justifiable, though probably constituting quite as elaborate a piece of cooperative work as any secondary school would be justified in undertaking with the experiment station. To impose upon these institutions the duties and responsibilities of a substation would therefore not be desirable, for unless there are two organizations within the institution the chances are that the funds intended for experimental work would be used to promote the ends of instruction departments, or vice versa, depending largely on the capacity and skill of the men

placed at the head of the teaching and experimental departments, respectively.

Those who have had large experience in experiment station work realize how very difficult it is to carry on investigations satisfactorily, except under the most favorable conditions. A large equipment is required to begin with. Men of fine attainment and unusual training must be secured, while a first-class library is absolutely necessary. The experience of experiment station workers in the United States bears out the statement that the greatest success has been attained when work of this character has been associated with great universities or other educational institutions which have a fairly liberal endowment, an abundance of scientific apparatus, and are pervaded by that peculiar atmosphere which scholarly men alone create. To isolate experimental work and workers under conditions where petty jealousies and strife enter into their problems is suicidal. Therefore, at best the secondary school should only act as a coordinating agency with the State experiment station, and it is unreasonable to expect an institution of this kind to organize and promote research of a highly specialized type. As a matter of fact, secondary schools of agriculture should be much more closely correlated with the college of agriculture than the experiment station. Their main function as stated at the outset of this paper is that of teaching, and this must be preserved, if their integrity is to be maintained and they are to serve the purpose for which they were established in a manner satisfactory to all the interests concerned.

From the point of view of the writer, there is an error in the Page Bill as it now stands which should be modified, if this measure is to be given serious consideration in the immediate future. Reference is made to the proposal to establish a substation in connection with every secondary school. Personally, I am not opposed to the secondary schools receiving supplementary appropriations from the Federal Government for the maintenance and more complete organization of their work, but if funds are appropriated to these institutions let it be for demonstrations of the type and character outlined in this paper. Work of this kind can be carried on successfully and with the hope of achieving results of some considerable value to the constituency these schools are intended to serve. Experimental work under the conditions surrounding the average secondary school is not likely to prosper. The enthusiasm of some friends of agricultural education and their lack of acquaintance with the true significance and application of the term experiment are probably accountable for the error in question. As friends of secondary education and as believers in the mission and purpose of the secondary agricultural and vocational school let us not as a body of clear thinking and patriotic citizens ask or expect them to undertake a service for which they are not prepared.

IV. THE USE OF LAND IN CONNECTION WITH AGRICULTURAL TEACHING.

(Report of committee of the American Association for the Advancement of Agricultural Teaching: R. W. Stimson, Boston, Mass., chairman; C. G. Selvig, Crookston, Minn.; G. A. Works, Madison, Wis.; F. R. Crane, St. Paul, Minn.)

DIVISIONS OF THE REPORT.

Upon the suggestion of Prof. K. L. Hatch, president of this association, Mr. C. G. Selvig, of Crookston, Minn., was assigned the portion of this report dealing with the use of land in connection with agricultural teaching at the special secondary agricultural schools; Messrs. Crane and Works were assigned the parts dealing with the use of land in connection with the teaching of agriculture by elementary schools and the colleges; to the chairman of the committee was assigned the part dealing with the use of land by high schools teaching agriculture.

Unfortunately, Mr. Crane changed his field of service and has been unable to give very much attention to the investigation. Moreover, Prof. Works found that his interests lay so largely in other directions that he did not feel like devoting the necessary time and labor to the preparation of his part of the report. The chairman of the committee has, therefore, extended his attention to the use of land in connection with elementary schools. He has not attempted to make an exhaustive survey, but will submit a few significant items of information which were received.

(a) IN SPECIAL AGRICULTURAL SCHOOLS.

By C. G. SELVIG,

Superintendent of Northwest School of Agriculture and Experiment Station, Crookston, Minn.

This part of the report concerns itself with special schools of agriculture, embracing—

1. Congressional district agricultural schools.
2. County schools of agriculture.
3. State and private agricultural schools with indeterminate territory, including—
 - (a) Schools located at the agricultural college.
 - (b) Schools located apart from the agricultural college.

These schools differ greatly in their organization, support, the kind of work offered, equipment, and the amount of land used. They have one main aim in general, and that is to teach practical agricultural practices to the young men who enroll. To secure data for this report, an inquiry was sent out to the schools as reported in Circular No. 97 (revised), Office of Experiment Stations. A careful

perusal of bulletins and announcements sent out by these schools and the information given in reply to the inquiry show the greatest diversity in their activities.

One thing may be noted at this time, and that is the great increase in the number of such special schools. The first one is scarcely 25 years old. This is the School of Agriculture at St. Anthony Park, St. Paul, Minn., which was organized in 1888. Nearly all are dormitory schools. The terms vary in length from six months of the year to continuous sessions during the year. Most of the schools have either six months' or nine months' terms. Courses include the general agricultural subjects. The emphasis in instruction is placed upon the practical application of agricultural principles to actual farm practice.

THE AIM IN THE USE OF LAND.

Primarily, the aim of these schools in the use of land is demonstrational, and not experimental. In most cases the land is used as a basis for laboratory work, but the main idea is to have the school farm show what can be done under the conditions prevalent in the part of the State where the school is located. Many of the schools report a limited amount of experimental work in addition to the demonstration work.

The school farms which are located at these institutions vary in size from 3 acres to several hundred acres. In the case of most of the larger farms, the major portion of the land is used for general farming work.

Some of the schools report part-time work on the school farm by the students themselves. This is not, however, generally done at the present time. Most of the labor used on these farms is hired. In many cases the students are hired to do the work, a part of it during the school year, but mostly when there is no school in session.

The replies to the inquiry sent out indicate that there is practically no individual plat work done by the students. In most cases the schools are in session during the winter. In the case of the schools where the term lasts six months, the idea is that the practical work of applying knowledge gained in school shall be done on the home farm of the students.

A more detailed summary of the information gained from the replies to the inquiry and from the bulletins published by these schools is appended as a part of this report. (See Appendix A.)

From this investigation there come certain conclusions as to the use of land in connection with special schools of this kind, based upon the present practices of the schools. It would be exceedingly difficult, if not entirely impossible, to lay down any specific rules that should apply generally. This comes because of the great diversity

in organization, the great difference in support, and in the problems that should be met in the different States and at the various schools. It is also unnecessary that there be any particular uniformity. These special schools have a definite problem to solve. They are so organized that they may adapt themselves to the needs of their particular sections of the country. All this report can attempt to do is to point out what is being done and to present advanced lines of effort that seem feasible and practicable. This part of the report of your committee is made without conference with the other members of the committee, whom it was found impossible to join; so they may be entirely absolved from its deficiencies.

LAND FOR DEMONSTRATION PURPOSES.

Most of these schools have a tract of land large enough to work out and illustrate some system of farming, as well as demonstrate ordinary farm practices. Truck farming, fruit farming, dairy farming, and other types of farming are shown. On these school farms there should be carried out a thoroughgoing farm business in actual practice which would give the boys a thoroughgoing, practical farm training. The land should serve as a model farm for both the boys who attend the school to study and for the farmers who visit the farm to inspect.

A certain minimum of land is demanded for this purpose. Most of the schools have this minimum of land already in use and are using the land in part or as a whole for the purpose mentioned.

COMMERCIAL FARM RECORDS.

The farm should be run on a strictly commercial basis, excepting such plats and parts as are used for experimental purposes. These should be kept separate as far as the accounting system is concerned. It is extremely important that statistics be furnished regarding the cost of all farm operations in each of the different sections in the State. The school of agriculture at Canton, N. Y., is doing this work in an intensely valuable way.

DEMONSTRATION WORK.

On the school farm accepted facts in agricultural practice should be tried out in a demonstrational way. At the Northwest School of Agriculture, at Crookston, Minn., the farm embraces 640 acres of Red River Valley prairie land. About one-tenth of the farm at the present time is used for demonstrational work on plats. While the demonstrations that are being conducted there would not fit in in other localities, the nature of the work done there may be of value

in showing the extent of the work. In Appendix B are projects that other schools are trying. There is some experiment work mixed in with this other work of a demonstrational nature, but, in general, the work is testing under farm conditions the old as well as the new methods promoted by the experiment-station workers.

At Crookston it is sought to build up a body of knowledge gained from these demonstrations which will be of value to the farmers of this section of Minnesota. (See Appendix B.) This knowledge will become also a part of the instruction work in the classrooms of the school. This knowledge and direct personal observation of the farm by the students will enable them to meet successfully the same problems on their home farms. It is a definite function of these special schools to conduct demonstrations that are of the greatest importance to their respective sections.

GENERAL FARM PRACTICE.

At Crookston the remainder of the farm is used to demonstrate on the larger fields that, commercially, crop rotation, the use of pure-bred seed, the proper cultural methods, and other accepted practices, pay. There are on this particular farm also several kinds of drainage; so that problem is being investigated. The production of pure-bred seed and stock are profitable business enterprises. The kind of work may be different in other sections of the country. Aside from the direct demonstrational work for which the land is used, there should be the greatest emphasis placed upon the incidental and often as important work that is made possible through the best possible use of the land. The farm may be the place where the best pure-bred seed for that section is produced. The same may be done in fruit growing, in gardening, and in forestry. Raw material for various feeding combinations for the stock should be grown on the farm and used in feeding the farm herd and poultry. Feeding stock economically is the largest factor in successful farming in most parts of the country. It is the place where farm practices fail oftener than at any other.

PART-TIME WORK.

The students should be required to have part-time work on the school farm. This will give them a closer acquaintance with the demonstration plats, the general farm fields, the farm records, the feeding work of various kinds, the practical use of machinery, and the ordinary farm operations. Of necessity, if the school is in session mostly during the winter season, the work on the school farm will be reduced to a minimum. There is time for some of this work, however, and it should be required.

“SUMMER PRACTICUM” WORK.

These special schools of agriculture do not, as a rule, allow as much time for actual work on the school farm as should be done by the students. Therefore some system whereby the students can carry out selected projects on their home farms is necessary. Several schools are doing work along this line. It is called “summer practicum” work at the Northwest School of Agriculture, Crookston. The inquiry sent out elicited no definite information regarding the nature and scope of this work at other schools. To illustrate what is meant, I take the liberty of describing the summer work at the Crookston school. I believe it is a vital part of the work of this school and will become an invaluable part of the training offered by the special schools. In this way the winter months are spent in getting in touch with the best agricultural methods, while during the time when there are no sessions the most successful farm methods are put into daily use and careful data are taken to be used the following term of school.

In the 1912 bulletin of the Northwest School of Agriculture the following paragraph was included under the title of “Summer practicum”:

Summer practicum work is a part of the regular school course, and must be taken by all C and B boys during the two summers intervening between the freshman and senior years. The work consists of practical work on their home farms in following up studies taken at the school during the winter. The projects selected must be submitted to the superintendent for approval before February 1. Regular reports of the progress of the summer work are required each month. Each student will be visited at least once during the summer by some one connected with the school, who will give suggestions, note progress, and report on the success being attained. Credits in this work are required for graduation from the school.

Early in the spring of 1912 a list of projects was made and minimum requirements governing each was formulated. (See Appendix C.) The first and second year students were given the privilege of selecting one or more of these projects for home work. As the work done in 1912 was the first attempted along that line by this institution, difficulties developed that will have to be remedied. In the first place, a choice of too many projects was offered. It was impossible to have all of the projects on the list of equal importance. Seventy-six projects were selected by 62 boys, more than one each, of 18 different kinds of work. Monthly reports were received from the 62 boys in all the projects where it was necessary to receive monthly reports. In all cases a preliminary and a final report were received. The projects planned were comprehensive enough to discover if the student had acquired a mastery of the principles that underlaid that particular work and knew what was expected of him. The success or the failure of the work depended upon himself alone,

although the projects were under the supervision of the school during the summer season. In this work were united theory, observation, and practice. The summer practicum work also served the very important work of bringing the school and the farmers of various communities together. It served a further purpose of enlarging considerably the areas of land indirectly supervised by the school. The summer practicum work put responsibility upon the individual students which they can not be made to assume in doing part-time work at the school, even if they have individual plats there. Caring for individual plats would not furnish the training in actual management afforded by the home work. When the summer practicum work is more fully developed it should become demonstration work of the best possible kind on actual farms, because from the nature of this work, properly done, it should have a large value in that direction. When the neighbor comes to John's home and sees there the work John is carrying out during the summer as a part of his agricultural school course, he is not only going to watch it closely, but profit by every step that means progress. This work is not the school professor's work, but it is John's work, done under his own intelligent management, because he knows from his school work and from his knowledge of successful farm practice that there is only one way to do that work right.

I regard this summer work as a very important part of the general plan of the use of land in connection with these special schools. It offers an unlimited field of effort along lines that will bring valuable results to the students and the farmers, and will increase the usefulness of the school manifold.

"POSTGRADUATE PRACTICUM" WORK.

In this connection I wish to mention briefly what will logically follow this summer practicum work. The boys who attend these special schools become actual farmers after leaving school. In Minnesota the graduates of schools of agriculture are counted among the most successful farmers of the State, the leaders in their communities. They can be organized into associations of farmers' clubs, and will continue to try out projects on their farms after they have left school, and report annually at their meetings their experiences, the cultural methods that succeed best, statement of the cost of production, the results with their stock, and so on. These annual meetings held at the school every year would prove to be of the greatest value. This postgraduate practicum work will be a means of carrying out the final step in the training for successful farming begun at the school. The truest justification of these special schools of agriculture comes when these institutions train such rural leaders.

WORK WITH LAND OUTSIDE THE SCHOOL.

Another line of work which special schools of agriculture already have taken up to a large extent, and which must become each year of increasing importance, is their work with actual farmers who are not enrolled in the schools. This will take several directions. It may be in actual work of planning farms, including starting rotations, or in live stock and drainage work, as the need may be. Demonstration plats may be run on the farms by the farmers themselves, using the suggestions of the corps of instructors connected with the agricultural school. These demonstrations will assist in introducing various new crops, in showing what new methods will accomplish, or in keeping a system of farm accounts. This may be considered extension work and be regarded as set apart from the work of the school. To my mind it would be a mistake to regard it in that way. The most vital thing in connection with these special schools of agriculture is that they come into close touch with the actual farmer on his farm and aid him in solving his problems as they arise. Only in this way can they keep close to the farmers themselves. Only in this way can they serve the purposes for which the schools were established.

(b) IN HIGH SCHOOLS.

By RUFUS W. STIMSON,

In charge of Vocational Agricultural Education, Massachusetts Board of Education, Boston, Mass.

MAGNITUDE OF MOVEMENT.

Members of this association are undoubtedly familiar with the publication issued annually in recent years by the United States Department of Agriculture, Office of Experiment Stations, giving the institutions of all grades, both private and public, which are teaching agriculture in the United States. Those present will probably recall the summary given at the last annual convention by Mr. A. C. Monahan, assistant in rural education, the United States Bureau of Education. Mr. Monahan said that figures taken from the reports submitted by schools teaching agriculture showed that the United States then contained more than 100 special agricultural schools of secondary grade, located in 17 different States, by which the schools were supported in whole or in part. In 1910, he said, agriculture was taught as a separate subject in more or less complete courses to more than 37,000 pupils in 1,800 public and 140 private high schools.

AUTHORITIES AND FORM OF INQUIRY.

In seeking information for this report inquiries were addressed to most of the State superintendents of public instruction and presidents or deans of the agricultural colleges. Each was asked to say what high schools, if any, had made the best use of land in connection with the teaching of agriculture during the past season, (1) home farm land, (2) land at the school. With the request for information were sent copies of a sheet giving the organization of this association and its purposes, also a sample of the form of questionnaire (see Appendix E) which was to be sent to the individual instructors in charge of the agricultural teaching in high schools whose names might be given.

STATES REPORTING USE OF LAND.

Twenty-three States have reported the use of land at one or more of their schools. The questionnaire was filled out more or less fully and returned by 22 States. Fifty-six replies, all told, were received, as follows; the number of replies from each State is indicated: California, 1; Illinois, 1; Iowa, 4; Maine, 4; Maryland, 1; Massachusetts¹; Michigan, 2; Minnesota, 9; Missouri, 1; Nebraska, 1; New Hampshire, 3; New York, 2; North Carolina, 2; North Dakota, 3; Ohio, 9; Pennsylvania, 1; South Carolina, 2; Texas, 2; Vermont, 1; Virginia, 4; Washington, 2; Wisconsin, 1.

ONTARIO AND QUEBEC.

The principal of Macdonald College, Quebec, Canada, reported that no use of land is yet being made in connection with the teaching of agriculture in high schools in the Province of Quebec. The deputy minister of the Ontario Department of Agriculture, Toronto, had the following to say:

I take it you mean the best use from the standpoint of developing interest in agriculture. Looking at it from this standpoint, I fear there is little in this Province which would be of assistance to you. Our district representatives, of whom we have now over 30 located at different points throughout the Province, conduct in many cases experimental plats covering an acre or less. These experiments have in most cases been very successful as experiments, but I do not know that they have had a very great effect in developing the interest in agriculture, particularly in the schools. Our work in the high schools outside the usual curriculum has consisted more in a course of six to eight weeks in the wintertime, supplémented in many cases by short courses of two or three days for the adult farmers, including those who do not attend school. At these short courses high-class stock is used for demonstration purposes. * * * I might add that the schools come under the Department of Education, and in addition to the work which is done by the Department of Agriculture in a general

¹ Conditions personally known to the writer.

outside way, the Department of Education is doing a great deal to develop interest in agriculture by means of school gardens, charts, object lessons, special training of teachers, etc.

SCHOOL LAND: DEMONSTRATION AND EXPERIMENT.

Where high-school land is reported as being used, in most cases it is being used for experimental or demonstration purposes, rather than for purposes strictly productive. Many schools have so recently undertaken their work that they have little in the way of results to report. The president of the North Dakota Agricultural College, for example, says:

Our agricultural high schools only began during the month of September, and as yet no work has been done on the agricultural experimental plats except to prepare the ground for next year's crop.

Dean Davenport, of the College of Agriculture, University of Illinois, wrote:

The high school at McNabb, Putnam County, has 24 acres of ground, and in the immediate neighborhood is one of our experimental fields. This is the first school of the kind to be located out in the open country, and I think should be mentioned as an ideal high school.

Unfortunately, the effort to secure information as to the use of the McNabb High School land was not successful.

SIZE OF SCHOOL PLATS.

The size of the experimental or demonstration plats varies from one-tenth acre up to 2 or 3 acres. Among the things shown the following were mentioned: Adaptation of different crops to the same soil conditions; effect of application of different fertilizers; variety tests of oats, potatoes with and without treatment for scab; grasses, wheat, legumes, corn; quantity of seed per acre for best yield, seed treated and untreated for smut; variety tests for yield per acre; effect of different depths of sowing; alfalfa growing with and without inoculation; soja beans, velvet beans, peanuts, cotton; rotation of crops; comparative effects of manures and commercial fertilizers on various truck crops; cover crops; effects of the use of lime; hothouse crops; orcharding.

PROFIT AND PROFIT SHARING IN CERTAIN CASES.

In a case now and then crops are grown for profit. In some cases the pupils have all the profit, in others the school has it, in others the profit is shared between the school and the pupils.

USE OF OTHER THAN SCHOOL LAND.

Twenty-two high schools reported agricultural production on home farm land or on other land apart from the school premises, with

more or less attention paid by the agricultural instructors to the home enterprises of their pupils. Following is the list:

Amaly Union High School, Sebastopol, Cal. (adjacent to school owned by district).	Willmar High School, Willmar, Minn.
Cedron School, Natchitoches Parish, La.	Maryville, Mo. (corn-growing contests).
Skowhegan High School, Skowhegan, Me. (home land and other land).	Hopkinton High School, Contoocook, N. H.
Madawaaka Training School, Fort Kent, Me.	Grafton High School, Grafton, N. Dak.
Agricultural High School, Sparks, Md.	Crooksville High School, Crooksville, Ohio.
Hopkins Academy, Hadley, Mass.	Bedford Village High School, Bedford, Ohio.
Harwich High School, Harwich, Mass.	Waterford Borough and Township High School, Waterford, Pa.
Smith Agricultural School, Northampton, Mass.	Farragut School, Concord, Tenn.
Northboro High School, Northboro, Mass.	Alford Academy, Burkeville, Tex. (corn club).
North Easton High School, North Easton, Mass.	Chester Agricultural High School, Chester, Va. (work at home encouraged).
Petersham High School, Petersham, Mass.	Ellsworth High School, Ellsworth, Wis.
Howard Lake High School, Howard Lake, Minn.	

CORRELATION OF STUDY AND HOME WORK RARE.

An effort, as you will see from the questionnaire, was made to ascertain how much of the agricultural instruction grew out of the actual home needs of the pupils or was such as to be directly applicable thereto, and how much of it consisted of the teaching of agriculture in general. Rarely has any attention apparently been given to the direct correlation of the home work of the pupils and their classroom instruction. One instructor writes:

All members of the class do some home work and report each month in a written thesis. I regard this as a valuable part of the year's work. It is accepted at the university (California) on the same footing as any other regular study.

CASES OF SYSTEMATIC SUMMER SUPERVISION.

In answer to the question as to how often during term time and how often in summer the instructor supervised the home work, no replies were given. The general question, Does the agricultural instructor supervise this home-farm productive work? found affirmative answers. Sometimes the instructors report that they supervise fortnightly during term time and monthly during the summer. Usually, however, there is no summer supervision, and sometimes not even one visit to the home of the pupil for studying at first-hand the pupil's needs.

The most systematic supervision of home work is found in such cases as that of Virginia, where the instructor serves in a double capacity as teacher of the pupils who come to the school and as

demonstration agent among adult farmers; and in Massachusetts, where no vocational agricultural training may receive State aid which does not include the close correlation of classroom instruction with productive farming on the home land of the pupils and the systematic supervision of the home-farm work by the instructor from March through the summer until the end of November. (The Massachusetts agricultural instructors take their vacations in the dormant months of winter.) In Massachusetts the formal classroom instruction covers about four spring months and about two months in the fall. Supervision during those months of the home-farm work is less frequent than during the summer. The instructor's primary business in the summer is to keep in the closest possible touch with his pupils in their home work, and the frequency with which the instructor visits his pupils is determined chiefly by the distance which he has to travel. One instructor rides a circuit of between 50 and 60 miles from farm to farm among his pupils; another rides a circuit of over 40 miles. The shortest circuit is above 30.

CORRELATION AND SUPERVISION DESIRABLE.

It is now and then stated among the remarks submitted with the questionnaires that more home work, and closer supervision of that home work by the agricultural instructors, would greatly enrich the values of the training and the interest of the pupils in their instruction. Some who have never done anything of the sort express a hope that they may soon undertake a closer correlation of their classroom instruction and the home-farm work of their pupils, giving to that work the impetus of their personal enthusiasm and of their close and intelligent supervision.

PRIZES AS INCENTIVES.

In a number of cases reliance appears to have been placed on the offering of prizes as incentives to good home-farm work. Here the work is sometimes so organized that committees of responsible citizens undertake to inspect, and vouch for, the honesty and high quality of the work and results of the home enterprises. On the whole, there appears to be good evidence that prizes are of much assistance, whether the supervision of the home-farm work of pupils be carried on by committees of citizens or by the agricultural instructors. In Massachusetts, for example, 32 of the incorporated agricultural societies of the State have this year had, and will hereafter receive, State grants of \$200 each for prizes at the fall fairs, on animals, farm crops, fruit and vegetables grown by the exhibitors, and on general excellence in stock judging. The stock-judging premiums were keenly contested for. The prizes at the local fairs were usually: First, \$15 in gold; second, \$10; third, \$5. The Brockton Fair

Association put up \$200 in scholarships to be competed for by the winners of the local contests. One hundred and eleven boys took part in the local contests and fifteen boys entered the final contest at Brockton. The boys from the Hadley (Mass.) School won \$243 in prizes, besides a trip to Washington, D. C., won by one of the boys. Letters which were received show that local contests leading to some big contest in a State and some big prize there won, or to a trip to Washington, have added a decided zest to the agricultural training of both boys and girls.

SCHOOL LAND SOMETIMES DESIRABLE.

The United States Department of Agriculture was without funds for field work the past summer, and Mr. Crosby was unable to contribute data for this part of our report. From Mr. A. C. Monahan, of the Bureau of Education, the following very interesting accounts have been received:

It is impossible for me to say what school is making the best use of land for instructional purposes, but I like the plan in use at the Concord (Tenn.) Agricultural School for an institution working under the same conditions as that school. The pupils are all day pupils and those taking agriculture follow a scheme somewhat similar to the home-project plan, which you are advocating in Massachusetts. The school ground itself (12 acres) is divided between a playground and a demonstration plat. The principal's home is located on the school grounds. About 6 acres are used for gardens. On this land is carried out a series of demonstrations to show the merits of different methods of cultivation and fertilization.

The Cedron School in Natchitoches Parish, La., is making good use of its land. Conditions are very much different from those in Tennessee. The school has an enrollment of about 105 pupils in all grades from the first to the eighth, with boys and girls from 5 to 18 years of age. The school garden is comparatively small. It is managed as a common garden, no pupil owning any special part of it, but all work together upon the garden as a whole. It is made a model in every respect, and it is intended to teach the boys and girls, and the community as well, through this garden the best methods of cultivation. In the few years that the school has been in existence the garden has been the earliest in the community, has the greatest variety of vegetables, and vegetables of the best quality. Hotbeds are managed in connection with the school work and thousands of early plants are distributed free to pupils to take home to their home gardens. In addition to this work on the school grounds by the boys and girls under the direction of the principal (Mr. Bott), the children are organized into tomato, pig, and corn clubs; the tomatoes, pigs, and corn being raised at their homes. A canning establishment has been erected beside the school building as a community cooperative movement, with the principal of the school as its president. The motive for its establishment was to find an outlet for the vegetables raised by the school children, both on the school property and on their home land. It is, however, canning vegetables of all sorts for the entire community. This year it will put up and market at least 50,000 pounds, netting the community more than \$2,000. It is 10 miles to the nearest railroad; so that such a community enterprise was badly needed.

SCHOOL LAND NOT INDISPENSABLE.

Sometimes it has been thought that agriculture can only be taught successfully where the school itself has land and live stock, each closely approximating the ideal of its kind. It may be of interest to

members of this association to know that the winner of the first prize, \$150, at Brockton, Mass., and the winner there of the second prize, \$50, in stock judging, were from a high school which does not own a head of live stock of any description. The training of these boys for the event was had by going from farm to farm and scoring the best animals found in the neighborhood of the school, also by a trip to the agricultural college, where excellent types of the different breeds of live stock to be judged were to be found. Substantial prizes were also won by pupils trained in agricultural classes at high schools which do not own or operate a foot of cultivated land.

ECONOMIC RETURNS.

The effort to secure information as to the profit of the individual pupils from the working of land other than school land was largely unavailing. The Madawaska Training School, Fort Kent, Me., reported returns not all in, but so far the highest net profit this year, \$5.10. The profits are sometimes suggested, when not stated in specific figures. For example, the Savannah High School, Savannah, Mo., reported as follows:

The work we have done with land has been in connection with a 9-acre tract, which we rented. The first year some of the boys of the class did the work; the second year (the present year) we had the work done by a man. We have directed the work and have used any materials we needed from the land. Our work has been confined chiefly to seed corn, seed oats, clover, millet, potatoes, and alfalfa. The profits have gone to the owner of the land and to those who did the work.

MASSACHUSETTS RESULTS.

By net profit, of course, is meant profit after the pupil had paid himself for his own labor and had met all other expenses in connection with his crop or crops. The highest net profit for 1911-12 in Massachusetts was \$270.24. This pupil had paid himself \$109.02 for labor and had paid others of his family for labor, use of land, etc., \$771.49. The total income of the family from his home project, which consisted of the handling of 12 dairy cows from November 7 to June 7, and which had been carefully studied at the school and supervised by the agricultural instructor, was \$1,150.75. In addition this boy, 18 years of age, was allowed by his father for other farm work done at home \$200. The boy's income from farm work alone, therefore, for the school period covered by the report, was \$579.26. This is one of the best examples of the combination of *earning and learning* in the carrying out of the Massachusetts plan of "part-time" training in agriculture which was discussed before this association a year ago. (See, also, above, p. 34.) The least favorable total this year was \$7 from a one-eighth acre garden, immaculately kept, but so carefully kept that the labor cost, in spite of the instructor's

best advice, ran up far too high for economic production. Some of the figures were radically reduced by crop failure due to unseasonable frosts, drought, or blight. One boy's garden was cut back three times by killing frosts. Appendix D gives items taken from the accounts of 5 boys from each of five representative points in Massachusetts where this plan of training has been in operation the past season. All but 3 of these boys showed earnings from farm work running into three figures. Two earned over \$300, 12 earned over \$200. Of the 3 that fell under \$100, 1 earned \$95.10; another, \$64.90; and the third, \$58.47. The total farm earnings of the 25 pupils exceeded \$5,000.

VIRGINIA METHODS AND RESULTS.

Some of the returns sent in, apart from the questionnaire blank, cover both high-school and elementary-school training. On the whole, however, the following letter from J. D. Eggleston, State superintendent of public instruction of Virginia, bears perhaps more closely on high-school training than on elementary, and is therefore here given:

First. We have organized in 45 out of the 100 counties corn clubs composed of schoolboys ranging from 10 to 18 years of age. We have about 2,500 boys in these clubs.

We have in each of these counties a man called the "demonstration agent," whose business it is to assist the adult farmer or any member of our boys' corn club who desires to be shown how to raise better crops of corn and grass. The adult farmer uses as much of his own land as he pleases in following the directions of the demonstration agent.

Each boy has 1 acre on his father's farm; if he has been a member of the corn club for more than one year, he has his acre of corn and also an acre of grass. He works strictly under the eye of the demonstration agent, and the agreement with the father is that the crop belongs to the boy, as we do not desire the boy to be exploited, and we wish to teach him that phase of citizenship which is expressed in terms of commerce.

We have also 11 agricultural schools; four years ago we had 2; we hope to add 1 or 2 to the list each year, and we are arranging in these schools, and have already arranged in 5 of them, so that the teacher of agriculture at the school shall also be the demonstration agent in the county in which the school is situated.

Through a cooperative arrangement with the United States Department of Agriculture, the State of Virginia, the State board of education, and the local educational authorities, the program of work for the demonstration agent is agreed upon. For example, at the agricultural school in Nansemond County the instructor in agriculture at the school devotes three days of the week to the school farm and the agricultural work at the school; and three days of the week in the county, showing the farmers and the boys on their farms how to improve agricultural production.

We have the same plan at the Nottoway County High School, situated at Burkeville, Va., and the same plan will be started at three other schools this fall. The plan has worked admirably in Nansemond County and in Nottoway County, and has helped to popularize schools to a great extent.

It is now a common thing for farmers to come to the schools to have seed tested, to seek advice on all sorts of matters pertaining to the farm, and to ask for the services

of the demonstration agent on their farms. You can imagine the hold that this gives the school upon the community within a radius of 6 to 10 miles and even farther.

The instructor in agriculture in the Nansemond Agricultural School last session probably paid back to the farmers three or four times the amount of his salary by showing them how to eliminate hog cholera, which had been "rife" in that county for years. He has completely eliminated it.

This does not include the excellent work that he has done in increasing corn production, cotton production, trucking, and the raising of grass; and I may say in this connection that where this demonstration work is being done, the increase in corn per acre has been phenomenal. The same may be said of grass, and, of course, the teaching will be extended to other farm produce. We had to begin with what we thought was the easiest thing to take hold of.

Second. Our idea here is that the best use that can be made of the school land or school farm is to use it as a demonstration plat to show what the land will produce, and while using it in this way to use these materials as the proper subjects upon which the children may concentrate their self-activities.

You can see, for example, that any amount of arithmetic of the best kind can be gotten through school farm work. We require accurate accounts of outgoing and incoming; we require that the account be balanced at the end of the crop; we require that the boy shall, at every step, describe clearly what he is doing, and why; and we thus get excellent materials for the study of arithmetic, oral and written language, writing, spelling, etc.

It seems to me to be proper that a certain amount of the school farm work shall be done by the children for the school. I mean by this that the products to a certain extent shall accrue to the common fund in this miniature democracy, and that the funds from the sale of these products shall, with the consent of the children, be used for the enrichment of the democracy; as, for example, for library books, for pictures, and for other purposes of improving the democratic environment.

Beyond this, the children should receive pay for their labor; and if they do not, the management of the school becomes autocratic and the child is exploited, which is absolutely foreign and repulsive to democratic ideals.

The child is a citizen in the making and the teacher is the citizen maker. The school is the atmosphere for the growth of democratic ideals. The citizen is not complete who does not know the value of labor and who does not receive the proper return for his labor.

* * * * *

I can not state too strongly that I believe that the best place to teach agriculture is on the farm, and that it will not cost any more money and will produce much more satisfactory results in every way if we have the boy apply the theory, not at the school, but on the farm where he is likely to make his own living in the future.

I need not say to you that one of the great handicaps to the teaching of agriculture in high schools is that it tends to become a purely academic routine; and a healthy, energetic boy becomes utterly disgusted with studying about agriculture and going through all sorts of motions, when his whole being cries out for the opportunity to shuck his coat and feel the sweat spring from his pores, while he knows that he is working his own crop with his own muscle and that the returns for his labor will go into his own pocket.

USE OF LAND HINDERED BY OTHER TEACHING.

Failure to pay attention to the home conditions and home work of the agricultural pupils one may suspect is often to be found in the fact that the instructor must teach other subjects than agriculture. The questionnaire called for returns as to how many agricultural

instructors were called upon to teach other subjects than agriculture. Thirteen reported that they taught only agriculture, 41 reported that they taught other subjects. Among the other subjects which the instructors were called upon to teach were the following: Physical training, manual training, physiology, biology, zoology, botany, physics, chemistry, physical geography, bookkeeping, psychology, rhetoric, English, Latin, German, algebra, geometry, history, civics, and geography.

USE OF HOME FARM LAND MOST IMPORTANT.

Your committee feels that an enormous opportunity for usefulness, both cultural and vocational, is being missed where the teaching of agriculture by high schools is not so conducted as to stimulate home production and to bring that home production to a high state of efficiency through the patient and sympathetic but persistent supervision of competent agricultural instructors. It is reported that in New York 28 high schools are teaching agriculture; in Ohio, 900. Your committee is of the opinion that the hour is at hand for furthering, not so much the rapid extension of the teaching of agriculture to an ever-growing number of high schools, as the improvement of the quality of the instruction where it is already established by centering it upon supervised economic production carried out by the pupils on their home farms.

(c) IN ELEMENTARY SCHOOLS.

RETURNS FROM OHIO.

Ohio reports that 10,000 elementary schools in that State are now teaching agriculture. Mr. Lester S. Ivins has written that in Ohio there are now about 1,500 boys in the acre corn contest and 2,000 boys in the acre wheat contest. Winning boys in each county get large cash prizes and free trips to Washington, D. C. The above contests are by country boys in the country, excepting in a few cases where city boys went out into the country and secured acre plats in order to get into the contest.

Our estimate on village and city gardens, on vacant lots and back-yard home gardens, is 25,000 pupils. This is very conservative, because many gardeners in out of the way places did not register.

The following is a very interesting report of the Willard School Farm, Willard Avenue, Cleveland, Ohio, submitted by Mr. R. F. Powell:

Our Willard School Farm is just closing a very successful summer's work, a report of which I will gladly send if you desire it. It is not, however, a part of any high-school or grade-school curriculum. The class is conducted during the summer months

only, and the class is made up of volunteers, principally from Willard School fourth, fifth, sixth, seventh, and eighth grades.

To properly describe the land that we have in use, I need to divide it into three parts: First, Willard Farm proper consists of three large vacant lots in close proximity to each other, which together contain $2\frac{1}{2}$ acres. They are divided into 165 gardens containing 600 to 800 square feet each. They are properly prepared and fertilized and are loaned to children in the fourth, fifth, sixth, seventh, and eighth grades of the public schools to cultivate, on condition that the plat must be well cultivated and cared for and that the holder must not trespass upon anyone else's garden, on pain of forfeiture of his or her plat. Everything grown upon a garden belongs to the boy or girl who does the cultivation and may be disposed of as he or she may wish.

Each gardener pays a fee of 35 cents if in the eighth grade and 25 cents in all other grades, for which he receives all the seeds and plants and tools required in his garden.

When a boy or girl passes out of the eighth grade, if he wishes to continue his agricultural work he must borrow a vacant lot of someone any size up to a half acre. These are also thoroughly prepared and fertilized. The gardener furnishes all his seeds, plants, and tools and receives the entire crop. There were $3\frac{1}{2}$ acres of such lots cultivated by my boys this year. Four of these boys earned from \$75 to \$150 each during the summer months. The third division of the work is the home garden. It is usually in the back yard or a vacant lot next door. The care of preparing and fertilizing is done by the gardeners, which often includes two or more members of the family. My only part in connection with these gardens is an occasional visit and such kindly advice as may be asked for. There were about 500 such gardens this year in this (Willard) School District. Last year there were about 250, and the year before about 125. I think I am justified in believing that much of this rapid increase in the number of home gardens is due to the very successful gardens that the 165 children had in Willard School Farm.

RETURNS FROM MASSACHUSETTS.

In Massachusetts, under the inspiration and guidance of the extension department of the Massachusetts Agricultural College, land has been used the past year by school children, chiefly elementary, as follows: Raising corn, by 4,562 children; raising beans, 1,814; raising potatoes, 6,781.

Mr. W. R. Hart, professor of education at the college, who gave these figures, wrote further as follows:

In addition to these, there were two clubs, smaller in number—one, the potato culture club, numbering about 190. These were given special directions as to the culture of potatoes, with a view to discovering a strain of high-yielding tubers by selection of seed from the best producing hills. Another club which I organized this year for the first time is called the Junior Corn Growers' and Junior Potato Growers' Club, in which a half acre of potatoes and a whole acre of corn were taken as a basis of competition in a prize contest. This club numbered 29, located for the most part in Hampshire County. I did not extend it throughout the State, because I wanted to make a try-out of the details of the work connected with such a club before making it a State-wide organization. I have now got the matter sufficiently well in hand to extend the proposition to all boys of the State next year. It will constitute one feature of the work in charge of Prof. Morton. After this year's experience, it seems advisable to reduce the area in the case of potatoes to one-eighth of an acre and in the case of corn to one-fourth of an acre. Quite a number of Mr. Burke's boys in

Hadley were in this contest, and I find that not only his boys but those in Amherst, who are attending school, are having difficulty in securing the crops on as large an area as the acre of corn or the one-half acre of potatoes without hiring considerable help. It is on this account that I think it advisable to reduce the area, especially in the case of boys who are attending school. For young men under 19, who have quit their school work, a larger area may still be advisable and some change in that direction may be made in the future.

APPENDIX A.

SUMMARY OF INFORMATION FROM SPECIAL SCHOOLS OR CURRENT BULLETINS.

(Figures in parentheses are cost of maintaining land, annually, as reported.)

ALABAMA.

First District School: 57½ acres owned. (\$1,000.) Demonstration work; 5 varieties corn; 7 varieties wheat, in 1-acre plats.

Third District School: 40 acres owned; 25 acres in cultivation, experimental. Work: Chemical needs of soil are studied; physical defects are remedied; improvement of worn soil; rotations are practiced; variety tests of corn done; fertilizer tests of corn and cotton made; variety tests of grasses and forage crops; cultural methods taught; students are required to do some farm work.

Fifth District School: 80 acres owned; not all used for demonstration work. Breeding work: Plats, 15 acres wheat, corn, oats, and vegetables. General farm work, 45 acres.

Sixth District School: 80 acres owned. (\$1,000.) Variety and fertilizer tests. Demonstration work for maximum yields, 1 acre. Three-fourths of land used for demonstration of corn and cotton. All boys required to do two hours of work per week on farm.

Eleventh District School: 300 acres owned; 60 acres under cultivation; 20 acres for experimental purposes; remainder for general farm crops.

ARKANSAS.

First District School: 462 acres, consisting of both high and low lands. Various crops; 300 acres used. Hired labor and some schoolboys carry on the work. During school year the boys did major portion of work. Much stock.

Second District School: 200 acres tillable land. Corn, 47 acres; sorghum, 30 acres; melons, 2 acres; etc. Orchard. 1912—Acre rotation plots, cooperative plan; school to furnish seed, tools, etc., and boys the labor. Each to share one-half. Much stock.

Third District School: 400 acres; 150 acres cultivated for demonstration purposes; remainder for general farm. Orchard work; breeding plat work; seed selection work; variety testing work, 68 acres; fertilizer test; deep plowing test; cover crops experiment; much stock.

Fourth District School: 500 acres; some gravelly ridges and some bottom land; 100 acres to general crops. All work done by students, paid. Have some live stock.

CALIFORNIA.

University Farm School, at Davis: 779 acres. Experimental work by the agricultural experiment station of the University of California. Field work by students, observation. In agricultural botany students have small (20 feet by 24 feet) garden plats. Demonstration and experiment plats are in charge of experiment station and separate from school.

COLORADO.

Fort Lewis School of Agriculture: 6,400 acres; 130 acres cultivated. Grains and orchard work.

GEORGIA.

General notes for all the district schools of Georgia: Students work on farm part time during school year; paid; third and fourth year students have acre plats. Class and field work go together. Income from farms, 1911, \$395 to \$3,716; from the 11, \$22,832.

Second District School: 315 acres; 80 acres in practical farming, agronomy; 5 acres, horticulture; remainder for pasturage and forestry. Have some stock.

Fifth District School: Monroe, Ga. No data.

Ninth District School: Model farm.

MARYLAND.

Sparks Agricultural School: 7 acres owned. Experiments in orchard. Dozen one-eighth acre wheat varieties; 20 grass plats. Each student has 1 acre at home for summer work. Demonstration plats on 25 farms; alfalfa, etc.; work on 100 farms in 1911; 200 corn growers' club plats in 1911; new variety corn introduced on 1,000 farms.

MASSACHUSETTS.

Smith's Agricultural School: 93 acres owned. Demonstration. (\$1,500.) Five acres growing young apple orchard; 1 acre spraying, pruning, and renovating old orchard; one-fourth acre raspberries; one-eighth acre peach nursery; 2 acres garden; one-fourth acre ear to row corn test (best yield 116½ bushels corn from 50 hills); one-fourth acre alfalfa; remainder general crops.

MICHIGAN.

Dunbar School, Chippewa County: 600 acres; 80 acres cultivated. (\$1,500.) Second year only. Have some stock. Students work part of time, by groups; no individual plat work yet. Planned: Agronomy, 1 acre to one-twentieth-acre plats; grain breeding and forage crops; preparing seed bed and fertilizer. Horticulture, 1 acre; vegetables for school only; propagation of plants and cultural methods. Soils and fertilizers, 1 acre to one-twentieth acre; to determine what special fertilizer is needed. Remainder, pasture for cows and pigs and grain for stock; some forestry work.

Menomonic County School: 105 acres; use 52 acres. (\$1,200.) (Receipts for 1911, \$564.) Agronomy, 40 acres, one-tenth acre to 4-acre plats. Horticulture, 1½-acre to one-tenth acre plats. Demonstration work outside with alfalfa and potatoes; experiments with green manuring and fertilizers; different rotations of crops; corn breeding work.

MISSISSIPPI.

Harrison County: 500 acres; 25 acres worked in 1912; 2 acres by each student; 5 acre demonstration plats; 1-acre to one-twentieth-acre fertilizer plats; have stock.

Bolivar County Industrial College: 20 acres of land. No data received.

Sunflower County, Moorhead: 35 acres; ¼-acre rotation plats planned for next year; students have plats—they draw plans, prepare soil, and do demonstration work; aim is to have an ideal farm.

Jones County Agricultural High School: 40 acres. (\$500.) Land is terraced; cleared of stumps. (\$1,000.) Soil-improvement crops put on last season; aim is to make farm work demonstrational; farm is now on self-supporting and paying basis.

Alcorn County: 40 acres owned; land is worn out; will be built up.

Simpson County: 5-acre to one-half acre demonstration plats in soils and fertilizers; experiments carried on by subsoiling with dynamite.

Noxubee County: 40 acres. (\$1,500.) Demonstration—1 acre wheat; 7 acres corn; one-fourth acre peanuts; 1 acre peas; one-fourth acre beans; one-eighth acre soy beans; 1½ acres potatoes; 1 acre garden; 15 acres hay. Aim is to distribute garden seed and to teach diversified farming.

Mayne County: 90 acres; 40 acres in open; have stock. All students do some farm work. Demonstration plats—13½ acres in one-half acre plats; 6 acres in agronomy department, inclusive; horticulture—fertilizer on corn; 1½ acres in one-eighth acre to one-fourth acre plats to show yields, adaptability, root and stem growth. Soils and fertilizers: 2 acres nitrate of soda on oats and corn; 2 acres to find difference in uplands and lowlands for cane; 1 acre to find difference in benefit to land of grass and pea crop; general uses for remainder of farm. "Offering suggestions to those who will take them" is one of the aims.

NEW YORK.

State School of Agriculture at Alfred: 236 acres owned; 130 acres cultivated. (\$150.) To determine comparative yields of cereals and root crops; commercial records kept on farm; to demonstrate advantage of seed selection and breeding of pure seeds; drainage; fertilizer tests; to demonstrate profit of old abandoned orchard; to show cost account of 1 acre renovated orchard (net income \$100); to show 1 acre potato yield 288 bushels; (\$44); 17 acres were used exclusively for experiments and growing plants for class use; much stock kept; variety work done.

State School at Morrisville: 200 acres for demonstration work; has some stock.

State School at Canton: 170 acres, leased; no experimental work planned; have stock. (1) Work to determine cost of production: 4½ acres potatoes—planting, spraying, storming, selecting seed, fertilizing, and digging; corn, 18 acres; oats, 16 acres; cabbage, 1½ acres; beets, seven-sixteenths acre (one-half sugar beets); alfalfa, nine-sixteenths acre; hay, 43 acres. (2) Demonstration work: (A) Fertilizer for oat plant; proper amount of seed per acre without loss to clover seeding. (B) Ear-to-row corn work; corn breeding. (C) Chemical fertilizer.

OKLAHOMA.

Murray State School: 190 acres; 10 acres for demonstration purposes. (\$4,000.) Has stock. Students do no work yet, but will have it soon; they have 1½ hours' work a week now. Agronomy, one-fourth acre plats; cost of production; system of culture, care, etc. Soils and fertilizers, 10 acres; barnyard fertilizer; next year will have commercial fertilizer; balance of farm for farm crops. Experiment work on outside farms in wheat, corn, milo maize, Kafir corn, soy beans, peas, peanuts, alfalfa.

Connors State School: 160 acres owned. (\$1,000.) Demonstration work; good farming methods are advanced. Experimental work may be taken up next year. Students are required to do some work on farm.

Cornell State School: 91 acres; experiment farm crops. (\$2,000.)

Cameron State School: 160 acres; part upland and part lowland; 100 acres cultivated, showing cultural methods; 4 acres irrigation plant. Value of good seed; variety testing. Road making.

Panhandle Agricultural Institute: 80 acres. (\$600.) 10 acres in 1912. Summer tilled one-half and put one-half to crops. Work: Best cultural methods; grading and judging plants; study of seed. Experiments: Testing use of fertilizer; various grain and forage-crop experiments; breeding work; drought-resistance crops. Increased plats to farmers; 65 acres in 1912; 30 acres summer tilled; one-half acre alfalfa; 1½-acre fertilizer test; 5 acres for crops for class use; 2-acre drought-resistance crops; 1 acre sorghum; 2 acres orchard; 18 acres increased plats.

Haskell State School: 80 acres. Results: 1 variety broom corn, O. K.; several cross-bred sorghums, promise well. Plans: Pure seed work.

PENNSYLVANIA.

National Farm School: 360 acres; cultivated by student body of 74, who work three years, using one-tenth acre plats; they work 31 hours a week; \$9,000 net profit; \$500 were paid to two only, who cultivated 50 acres; corn breeding work carried on; work with shrubs and flowers. Production: 119 acres hay, 9 acres sweet corn, 10 acres tomatoes, 10 acres apples, 1 acre grapes, 13 acres rye, 9 acres oats, 4 acres vegetables, 61 acres corn, 8 acres potatoes, 4 acres pears, 8 acres cowpeas, 4 acres wheat, 1 acre cabbage, 2 acres asparagus.

VERMONT.

Randolph Center: 100 acres owned. (\$1,200.) School farm used as model and demonstration farm for school; animals and fields used as material for school; experiments are being carried on in corn breeding, oats, and fertilizers; cooperative work on orchards, cow testing, and agricultural advice.

WISCONSIN.

La Crosse County School: 140 boys in county each have one-half acre plat—come under school direction; demonstration plats, 5 acres. Agronomy, one-tenth acre to 1 acre; alfalfa, oats variety tests, fertilizer tests, ear-to-row corn test. Soils and fertilizers. Use peat and commercial fertilizer on sandy soil. Forage crops—Canadian peas and oats for hay; corn for silage; alfalfa.

Dunn County School: 6 acres; leased since 1902. Horticulture—different trees and shrubs planted; work with various grains; vegetables; variety tests carried on; treatment, fungus diseases, insect control; land first planted to corn; now in alfalfa; want 80 to 160 acres of land.

Milwaukee County School of Agriculture: 236 acres; owned; 10 acres orchard; 200 trees and 7,000 plants of various types.

Winnebago County, Winneconne: 11 acres. (\$250.) Drainage work carried on; need 40 acres for model farm and 5 acres for testing varieties. Agronomy: 2 varieties wheat, 1 acre each; 1 variety corn, 5 acres; 2 acres for ear to row corn test; 1 acre for orchard and shrubs; onions, 1 square rod, several fertilizers used; variety test work with potatoes, soy beans, and cabbage. Corn-growing contest carried on on outside farms. Farm side a failure.

Marathon County, Wausau: 3 acres; raise pedigreed grains; orchard, 1 acre, used for experiment and demonstration work in pruning and spraying by students.

Marinette County, Marinette: 6 acres. (\$500.) 2 acres of one-eighth acre plats for agronomy demonstration work; 2 acres of one-half acre plats for fertilizer work.

APPENDIX B.

Demonstration work at Northwest School of Agriculture, Crookston, Minn.

(Income 1912, \$5,600.)

Projecta.	Acres.	Year started.
1. Five-year rotation.....	2.5	1911
2. Three-year rotation.....	1.5	1911
3. Wheat continuously.....	.5	1911
4. Wheat continuously with red clover.....	.5	1911

Projects.	Acres.	Year started.
5. Seven-year rotation.....	3.5	1911
6. Corn continuously.....	.5	1911
7. Milling-wheat experiments (4 varieties).....	.75	1912
8. North Dakota wilt-resistant flax (variety test).....	.25	1912
9. Alfalfa work (variety, fertilizer, and nurse-crop tests).....	2.0	1908
10. Quack grass plot.....	1.0	1910
11. Variety test of 137 varieties of wheat, oats, and barley.....	7.7	1912
12. Fiber flax (experiment in cooperation with Federal Government).....	2.0	1912
13. Corn breeding (Minnesota No. 23).....	1.0	1911
14. Winter-wheat experiments.....	1.0	1911
15. Tillage experiment:		
(a) Use of packer.....	.5	1912
(b) Subsoil plowing.....	.5	1912
(c) Dynamite subsoiling.....	4.0	1912
16. Rate of sowing grains:		
(a) Wheat.....	1.0	1912
(b) Oats.....	1.0	1912
17. Methods of sowing grass—		
(a) On disked barley stubble.....	1.15	1912
(b) On fall plowing.....	.38	1912
(c) On corn stubble.....		1912
(d) On potato ground, not plowed.....		1912
(e) Demonstration plots.....	.25	1911
18. The use of fertilizers (demonstration with crops in a 7-year rotation, and with alfalfa).....	.20	1912
19. Major farm rotation:		
(a) 5 fields of 50 acres each in 5-year rotation.....	250.0	1911
(b) 7 fields of 30 acres each in 7-year rotation.....	210.0	1911
20. Drainage (see Bulletin No. 110, Minnesota Experiment Station).....	320.0	1908

For projects in poultry raising see Bulletin No. 119, Minnesota Experiment Station.

Horticultural projects were as follows: (1) Variety testing in vegetable garden—(a) Cucumbers, 2 varieties; (b) cabbage, 2 varieties; (c) beets, 3 varieties; (d) carrots, 4 varieties; (e) parsnips, 3 varieties; (f) peas, 3 varieties; (g) radishes, 3 varieties; (h) sweet corn, 3 varieties; (i) tomatoes, 7 varieties; (j) beans, 2 varieties; (k) onions, 4 varieties; (l) lettuce, rutabagas, and turnips, 1 variety each; (m) cauliflower, 2 varieties; (n) squash, 2 varieties; (o) pie pumpkin, 2 varieties.

(2) Potatoes: (a) Variety testing, 7 varieties; (b) potato experiments—Selected seed (cellar selection), hill-selected seed, common-run seed, rose tips or run-out seed, scabby seed treated with formalin, scabby seed untreated, seed ends as seed, stem ends with eyes; (c) experiments on larger fields—Early Ohio treated with formalin, untreated seed, Carmen No. 1 treated, Carmen No. 1 untreated; (d) spraying experiment—Early Ohio sprayed three times, Bordeaux 5-5-50; early Ohio checked; Carmen No. 1, Bordeaux 5-5-50, three times; Carmen No. 1 checked; all other varieties sprayed two times, 5-5-50.

(3) Nursery work: (a) Fruit-tree grafting; (b) cuttings planted; (c) seed collecting.

(4) Fruit planting: (a) Apples, 6 varieties; (b) crab apples, 4 varieties; (c) plums, 3 varieties; (d) cherries, 2 varieties; (e) bush fruits, 4 varieties; (f) strawberries, 4 varieties.

(5) Conifers, 3 varieties.

(6) Experimental lawn seeding.

Another project of the Crookston school was that of minor rotation for hogs.

APPENDIX C.

List of 1912 suggestive topics for "summer practicum" work, Northwest School of Agriculture, Crookston, Minn.

1. Growing green feeds for hogs. Feeding. Results.
2. Planting of fruit trees and shrubbery.
3. Various garden projects.
4. Growing green feeds for chickens. Feeding. Results.
5. Various cultivation projects.
6. Various fertilizer projects.
7. Grain breeding work.
8. Corn breeding work.
9. Alfalfa growing.
10. Full system of farm accounts of home farm.
11. Laying out the home farm and starting a rotation.

APPENDIX D.

Massachusetts State-aided vocational agricultural education: Examples of the income of pupils from farm work during attendance at school in 1912.

School or department.	Pupil's age.	Project or projects.		Pupil's project income.			Other family income from pupil's project.			Cash or credit received by pupil from farm work during project period.			
		Title.	Scope.	Net profit.	Paid self for labor.	Total.	Labor, man or horse.	Rent, seed, etc.	Total.	At home.	Away from home.	His own project.	Grand total.
1	2	3	4	5	6	7	8	9	10	11	12	13	14
Northampton.....	18	Dairying.....	12 Jerseys, Nov.-June.....	\$270.24	\$109.02	\$379.26	\$109.02	\$662.47	\$771.49	\$200.00	.....	\$379.26	\$579.26
Northampton.....	19	Poultry.....	37.80 Mar. 1-June 7.....	37.80	8.80	46.60	.....	4.95	.....	.....	.....	.....	.....
Northampton.....	19	Potatoes.....	22 R. 1. reds.....	16.94	6.00	22.94	.....	25.05	64.30	180.00	\$14.75	122.94	317.69
Northampton.....	18	Strawberries.....	1 acre.....	25.65	2.42	18.70	3.10	6.40	.....	.....	.....	.....	.....
Northampton.....	18	Strawberries.....	100 plants.....	11.04	3.46	14.50	16.80	8.00	.....	.....	.....	.....	.....
Northampton.....	18	Potatoes.....	Early spring.....	3.68	3.46	7.14	4.83	7.50	37.16	175.00	68.00	51.81	294.81
Northampton.....	18	Poultry.....	28 White Leghorns.....	28.74	3.52	32.26	.....	8.44	.....	.....	.....	32.94	195.44
Northampton.....	18	Poultry.....	32 barred rocks 4 months.....	19.22	13.72	32.94	.....	22.16	16.10	162.50	.....	.....	.....
Northampton.....	20	Alfalfa.....	Seeding down 1/2 acres.....	93.30	4.83	4.83	9.97	31.35	41.32	.....	145.05	4.83	149.88
Petersham.....	19	Garden and potatoes.....	1 acre each.....	93.30	16.76	110.06	29.45	1.00	30.45	101.60	48.00	110.06	259.66
Petersham.....	14	Garden.....	1 acre.....	44.35	12.00	56.35	3.00	13.25	20.35	164.60	6.08	56.35	227.03
Petersham.....	14	Garden.....	1 acre.....	10.67	20.00	30.67	4.00	4.75	8.75	134.00	2.50	30.67	164.17
Petersham.....	17	Garden.....	1 acre.....	14.03	11.80	25.83	4.05	16.60	21.25	63.50	22.80	25.83	111.53
Petersham.....	17	Garden and potatoes.....	1 acre and 1/2 acre.....	18.00	16.00	34.00	23.13	.....	23.53	132.10	30.00	34.00	196.10
Hadley.....	17	Fruit and corn.....	1 acre c. 1/2 apple trees.....	68.00	8.45	76.45	47.14	36.75	63.69	137.50	27.00	76.45	291.46
Hadley.....	18	Bees, poultry, corn.....	3 hives, 26 R. 1. reds, 1 acre c.....	58.50	38.50	97.00	8.00	16.00	24.00	116.00	.....	97.00	213.00
Hadley.....	15	Corn and poultry.....	1 acre c., 10 birds, 30 chicks.....	28.27	20.20	48.47	10.80	10.50	21.30	233.00	15.00	48.47	285.47
Hadley.....	18	Fruit and poultry.....	20 apple trees, off year, 34 R. 1. reds.....	20.15	6.15	26.30	3.00	2.00	5.00	47.30	125.30	26.30	198.90
Hadley.....	16	Poultry.....	128 sq. reds.....	7.45	13.50	21.15	.....	3.00	3.00	293.50	12.50	21.15	328.15
Northborough.....	17	Sweet peas.....	1 acre.....	43.00	14.70	57.70	.....	.....	.....	168.00	.....	57.70	225.70
Northborough.....	16	Garden and corn.....	91 sq. reds.....	30.00	3.00	33.00	3.13	6.00	9.13	196.00	15.00	33.00	234.00
Northborough.....	16	Potatoes and corn.....	1 acre p., 1/2 acre c.....	20.50	13.90	34.40	5.35	12.00	17.35	107.50	.....	34.40	151.90
Northborough.....	17	Corn and potatoes.....	1 acre c., 1/2 acre p.....	33.10	11.25	44.35	9.25	44.98	54.20	122.00	5.00	44.35	181.35
Northborough.....	16	Potatoes.....	1 acre (drought).....	33.02	7.57	40.59	1.40	25.60	27.00	127.50	.....	27.00	154.50
Harwich.....	17	Garden.....	1 acre.....	31.27	15.20	46.47	6.00	2.50	8.50	12.00	.....	46.47	58.47
Harwich.....	17	Garden.....	1 acre.....	12.60	18.10	30.70	1.90	4.00	5.90	5.00	10.00	30.70	46.70
Harwich.....	17	Garden.....	1 acre.....	15.92	22.40	38.32	1.20	4.00	5.20	75.00	.....	38.32	100.62
Harwich.....	14	Garden and potatoes.....	1 acre.....	7.90	7.00	14.90	1.40	1.30	2.70	12.00	38.00	14.90	64.90
Totals for 26 pupils.....	.....	.....	.....	1,066	446.72	1,512.72	319.04	994.60	1,313.64	2,840.10	762.18	1,510.02	5,102.30

¹ Project income less shrinkage in inventory of \$3.45 gives \$51.81.

APPENDIX E.

QUESTIONNAIRES SENT OUT.

I.

Use of land by high schools teaching agriculture, school year 1911-12.

Please send returns by November 1, 1912. Returns earnestly desired.

1. High school teaching agriculture. Name.....
Location.....
2. Agricultural instructor:
Name..... Address.....
3. Number of agricultural pupils.....
Number of girls taking agriculture.....
4. Agriculture is taught in what year or years of high-school course?.....
 (1) Number of weeks in school year.....
 (2) Agriculture, how many weeks per year?.....
 (3) Agriculture, how many days per week?.....
 (4) Agriculture, how many periods per day?.....
5. Are agricultural pupils fitted for college?.....
Or fitted primarily for farming?.....
6. How many agricultural pupils live at home during school year?.....
 (1) Number of nonresident or boarding agricultural pupils.....
7. Is agricultural production on home farm land or on other land apart from the school premises required?.....
 (1) Number working such land.....
 (2) Area, in acre terms cultivated by each.....
 (3) Does the pupil keep strict accounts?.....
 (4) Who has the profit, parent or pupil?.....
 (5) Highest net profit this year.....
 A. Additional amount paid self for labor.....
 (6) Commonest profit.....
 (7) Does the agricultural instructor supervise this home farm productive work?.....
 A. Supervises how often during term time?.....
 B. How often in summer?.....
8. Has the high school productive farm land?..... How many acres?.....
 (1) Are agricultural pupils required to cultivate it?.....
 (2) Primarily for whose profit, that of school or pupil?.....
 (3) Do pupils work as a group or gang?.....
 (4) Do pupils work individual plats?.....
 (5) If so, size of plats in acre terms.....
 (6) Profit of school this year.....
 (7) Profit per pupil.....
9. What area, if any, is devoted to demonstration plats?.....
Size of plats?..... Showing what?.....
10. Does agricultural instructor teach nonagricultural subjects?.....
 (1) If so, what?.....
 (2) A. How many periods per week for agriculture?.....
 B. How many for nonagricultural subjects?.....
11. Proportion of time given to—
 General study of agriculture.....
 Agricultural science as directly applicable to the productive enterprises undertaken by the pupils at home or at the school.....

12. Remarks:
 (Continue remarks on back of sheet and on other paper at will. Speak of features which have given you the best practical and educational results.)

II.

Use of land by special secondary schools of agriculture, school year 1911-12.

1. Name of special school of agriculture.....
2. Location of this school.....
3. Name and title of head of school:
 Title..... Address.....
4. Number of years in agricultural course,; weeks in school year.....
 - (a) Agronomy (including agronomy, grain judging, field crops, etc.) is taught days a week weeks a year during years.
 - (b) Horticulture (including horticulture, vegetable gardening, fruit growing, plant propagating, etc.) is taught days a week weeks a year during years.
 - (c) Soils and fertilizers are taught days a week weeks a year during years.
 - (d) Animal husbandry (including animal breeding, dressing meats, feeding, poultry husbandry, stock judging, study of breeds, veterinary science, etc.) is taught days a week weeks a year during years.
 - (e) Farm engineering (including blacksmithing, carpentry, drawing, farm machinery, gasoline engines, farm drainage, etc.) is taught days a week weeks a year during years.
 - (f) Agricultural science (including agricultural botany, agricultural chemistry, agricultural physics, economic entomology, etc.) is taught days a week weeks a year during years.
 - (g) Dairying (including dairy husbandry, dairy chemistry, dairy practice, dairy breeds, etc.) is taught days a week weeks a year during years.
 - (h) Farm management (including farm accounts, farm management, agricultural economics) is taught days a week weeks a year during years.
5. Previous training of students.....
 - (a) Agricultural course fits primarily for what kind of work?
6. How many agricultural pupils live at home during school year?.....
 - (a) Number of nonresidents, or boarding, agricultural pupils.....
7. Is agricultural production on home farm land, or is other land apart from the school premises required?.....
 - (a) Number working such land.....
 - (b) Area in acre-terms cultivated by each,
 - (c) Does the pupil keep strict accounts?
 - (d) Who has the profit, parent or pupil?
 - (e) Highest net profit this year.....
 - (a) Add what amount paid self for labor.....
 - (f) Commonest profit.....
 - (g) Do the agricultural instructors of the school supervise the home farm production work?
 - (a) Supervises how often during term-time?
 - (b) How often in summer?
8. Has the special school productive farm land?
- How many acres?.....
 - (a) Age agricultural school pupils required to cultivate it

- (b) Primarily for whose direct profit, that of the school or pupil?
- (c) Do pupils work as a group?
- (d) Do pupils work individual plats?
- (e) If so, size of plat in acre-terms.....
- (f) Profit of school this year.....
- (g) Profit per pupil.....
9. What area, if any, is devoted to demonstration plats on the school farm—total area
- (a) In agronomy acres. Size of plats.....
Showing what?.....
- (b) In horticulture acres. Size of plats.....
Showing what?.....
- (c) In soils and fertilizers work acres. Size of plats.....
Showing what?.....
- (d) acres. Size of plats.....
(Add other work.)
Showing what?.....
- (e) acres. Size of plats.....
(Additional work.)
- (f) What uses are made of remainder of farm not devoted to demonstration or experimental plat work?.....
10. What demonstration work is being done by agricultural school on other farms privately owned?.....
- (a) In planning farm (starting rotations, etc.): Number of farms.....
- (b) In conducting demonstration plats on farms: Number
- (a) Showing what?.....
- (c) In supervising live-stock breeding on farms: Number.....
- (d) In actual management of farms: Number.....
- (e) In keeping accounts of entire farms: Number
- (f) In advising in management of farms: Number
- (g) In sending out circulars regarding farms: Number
- (h) Any other work.....
- (i) Any other work.....
- (j) Any other work.....
11. What distinctly experimental work is being done on the agricultural school farm?
- (a) In agronomy, state projects.....
- (b) In horticulture, state projects.....
- (c) In soils and fertilizers.....
- (d) In any other work.....
- (e)
(Any other.)
12. Total annual appropriation for farm work
- (a) Total annual appropriation for school work
- Or, total annual appropriation for farm and school work
13. Is the school a separate institution? Unit of area
- (a) Is it a part of the State agricultural college?.....
14. Does the agricultural school own stock? If so, number of head of each kind.....
15. Remarks.....
16. Blank filled out by.....

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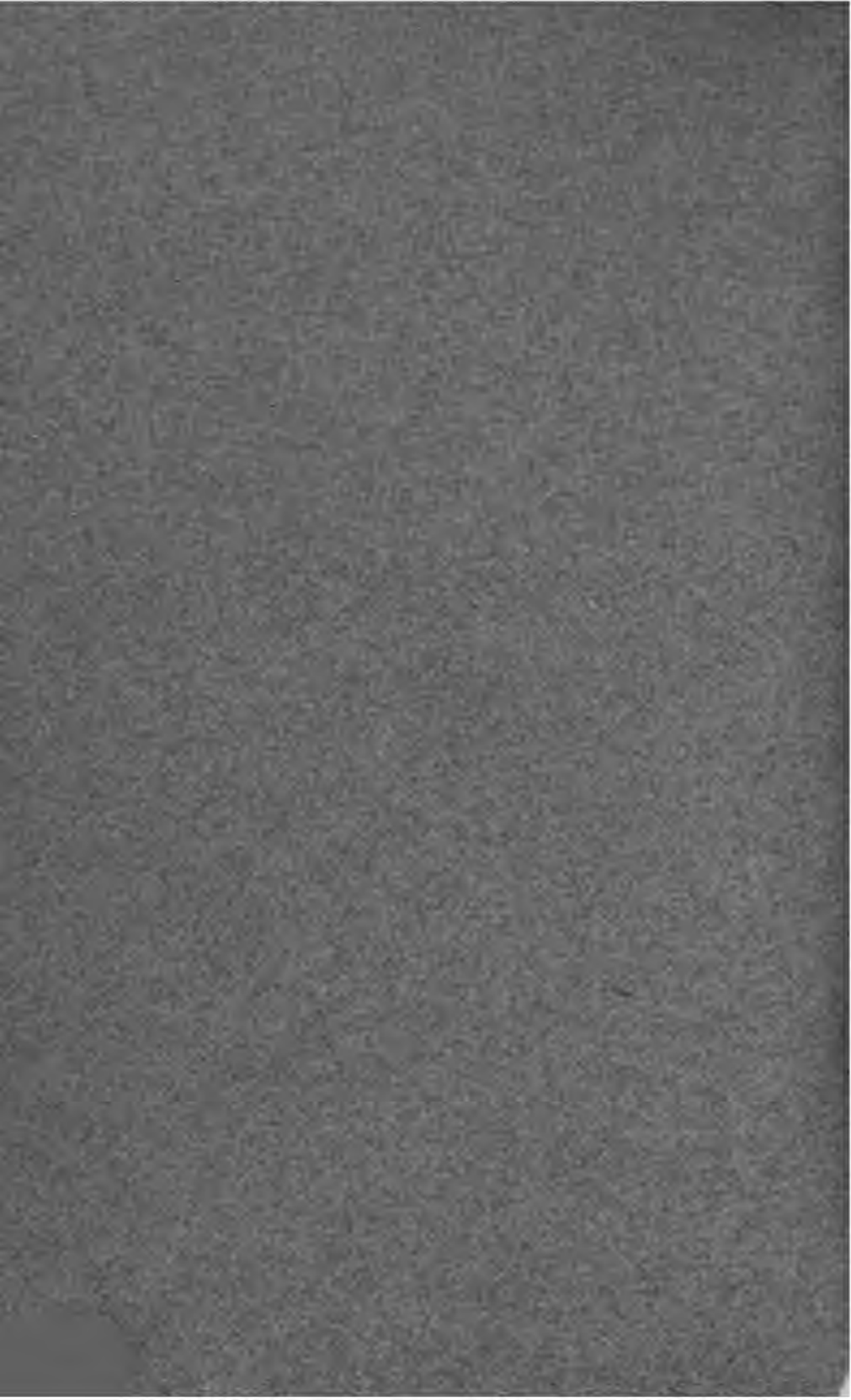
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MONTHLY RECORD OF CURRENT EDUCATIONAL PUBLICATIONS.

INTRODUCTORY NOTES.

Recent publications of special interest may be mentioned as follows: Sutton, Problems in modern education; Stevens, Guide to the Montessori method; Betts, New ideals in rural schools; Coffman, Mobility of teaching population; Felmley, New normal school movement; Sanders, Professional work in State normal schools; Carnegie foundation, Seventh annual report; Cattell, University control; Woodbridge, Present status of degree of Ph. D.; Strayer, Educational administration; Gray, Variations in grade of high-school pupils; Bancroft, Posture of school children; Monroe, Human interrelationship and education; Ward, Social center; Dewey, Industrial education and democracy.

The committee on school inquiry of the board of estimate and apportionment of the city of New York has recently issued the following reports:

Part II, Subdivision I. Elementary schools. Section F.—Problems in elementary school organization and administration. I. Intermediate schools. By Frank P. Bachman. v, 43 p.

Part II, Subdivision III. High schools. Section A.—“Courses” (programs) of study, except commercial courses. By Calvin O. Davis. xii, 76 p.

Of the publications listed in this bulletin, only those named in the section headed “Bureau of Education: Recent publications” are available for free distribution by this office. All others may ordinarily be obtained from their respective publishers, either directly or through a dealer, or in the case of an association publication, from the secretary of the issuing organization.

A directory of the periodicals indexed in the following pages may be found at the end of this bulletin.

Books, pamphlets, etc., intended for inclusion in this record should be sent to the library of the Bureau of Education, Washington, D. C.

PUBLICATIONS OF ASSOCIATIONS.

625. **Arkansas state teachers' association.** Proceedings of the forty-fifth annual session. . . . Little Rock, December 26th, 27th, and 28th, 1912. Little Rock, H. G. Pugh printing company, 1912. 265 p. 8°. (J. L. Bond, corresponding secretary, Little Rock, Ark.)

Contains: 1. J. P. Womack: Call of the country, p. 32-43. 2. O. H. Benson: Education for farm and home, p. 52-64. 3. G. B. Cook: Rejuvenation of the rural community, p. 70-77. 4.

- E. E. Morris: Right functioning of the college of today, p. 90-95. 5. F. H. Harrin: Have the normal training schools made good? What should be the policy of the state toward these schools in the future? p. 102-107. 6. J. M. Paul: The study of current events in the high school, p. 123-25. 7. S. C. Swearingen: Standards of efficiency in our schools; the need for such standards, and a suggested plan for working them out, p. 132-34. 8. H. A. Woodward: The savings bank in a high school, p. 135-38. 9. C. W. Garrison: Rural school sanitation, p. 155-58. 10. C. E. Womack: Rural school sanitation, p. 159-61. 11. A. M. Harding: Practical course in arithmetic for the high school, p. 187-91.
626. **Music teachers' national association.** Papers and proceedings . . . at its thirty-fourth annual meeting, Vassar college, Poughkeepsie, N. Y., December 30, 1912, to January 2, 1913. Hartford, Conn., 1913. 211 p. 8°. (J. L. Erb, secretary, Wooster, Ohio)
- Contains: 1. G. C. Gow: The teacher and his material, p. 49-59. 2. J. L. Erb: The college conservatory of music, p. 60-69. 3. H. C. Macdougall: The training of the composer, p. 80-90. 4. O. A. Mansfield: The teaching of musical composition, p. 91-98. 5. Julia E. Crane: The relation of the professional musician to school music, p. 101-109. 6. L. B. McWhood: College calls, p. 140-44. 7. E. M. Bowman: History of the organization of the American college of musicians, p. 145-55. 8. C. H. Mills: The history of music degrees, p. 159-70.
627. **Ohio college association.** Transactions of the forty-third annual meeting, held at Columbus, Ohio, December 27 and 28, 1912. [The Association, 1913] 114 p. 8°. (E. A. Miller, secretary, Oberlin college, Oberlin, Ohio)
- Contains: 1. Report of Committee on cooperation, including brief statement from each college of important changes in polity or practice, p. 9-10, 17-51. 2. E. E. Lincoln: The meaning of Oxford to the United States and the possibilities of the Rhodes scholarship scheme, p. 64-82. 3. E. E. Phillips: Bergson's theory of knowledge, p. 63-90. 4. W. L. Gard: The bearing of recent interpretations of formal discipline upon educational doctrine and practice, p. 90-99.
628. **Ohio state association of school board members.** Proceedings of the meeting held in Columbus, Ohio, 1913. Ohio teacher, 33 : 354-66, 373-76, March 1913.
- Contains: 1. J. F. Orr: How to run the schools without money, p. 354-59. 2. D. C. Westenhaver: The increase of school expenditures and the causes thereof, p. 359-63. 3. F. W. Miller: The cost of public education, p. 364-66. 4. John Davison: The inter-relations of boards of education, superintendents, teachers and constituency, p. 373-76.
629. **Pennsylvania state educational association.** School directors' department. Proceedings of eighteenth annual session, at Harrisburg, February 6 and 7, 1913. Pennsylvania school journal, 61 : 375-412, March 1913.
- Contains: 1. N. C. Schaeffer: [School revenue] p. 379-81. 2. Dr. Royer: Some results of medical inspection, p. 381-82. 3. A. D. Yocum: Tests of efficiency of the school system, p. 382-83. 4. M. G. Brumbaugh: A state school fund, p. 383-87. 5. M. T. Tredway: Progressive movement in education, p. 387-91. 6. P. P. Claxton: [Training in the schools] p. 391-94. 7. W. E. Runger: The public's children and civic experience, p. 394-97. 8. Samuel Hamilton: The physical square deal and the cigarette habit among boys, p. 398-402. 9. E. S. Brownmiller: The evolution of education, p. 402-406.

BUREAU OF EDUCATION: RECENT PUBLICATIONS.

630. Present standards of higher education in the United States, by George Edwin MacLean. Washington, 1913. 191 p. (Bulletin, 1913, no. 4)
631. Agricultural instruction in high schools, by C. H. Robison and F. B. Jenks. Washington, 1913. 80 p. (Bulletin, 1913, no. 6)
632. Status of rural education in the United States, by A. C. Monahan. Washington, 1913. 72 p. illus. (Bulletin, 1913, no. 8)
633. Consular reports on continuation schools in Prussia. Washington, 1913. 30 p. (Bulletin, 1913, no. 9)
634. Promotion of peace, comp. by Fannie Fern Andrews. Washington, 1913. 66 p. (Bulletin, 1913, no. 12)
- Contains: I. Suggestions for the observance of Peace day (May 18) in schools. II. Agencies and associations for peace.

BOOKS, PAMPHLETS, PERIODICAL ARTICLES.

EDUCATIONAL HISTORY.

635. **Brasier, Léon.** Histoire des maisons d'éducation de la légion d'honneur 2. éd. Paris, Librairie Renouard [1912?] 283 p. illus. 4°.
636. **Lemenestrel, Charles.** L'instruction en France date-t-elle de la révolution? Paris, H. Champion, 1912. 304 p. 12°.
- Undertakes to show that the present educational system of France is the product of a long course of development, extending from the earliest periods of French history.

EDUCATIONAL BIOGRAPHY.

637. **Baldwin, Bird T.** John Locke's contribution to education. *Sewanee review*, 21 : 177-87, April 1913.
- Writer calls attention "to a new interpretation of John Locke's views on education, by emphasizing the fact that his educational writings, like his philosophical contributions, characterize him essentially as a pioneer in certain aspects in this field of work."
638. **Draper, William Henry.** Sir Nathan Bodington, first vice-chancellor of the University of Leeds. London, Macmillan and co., limited, 1912. xii, 256 p. front. (port.) 8°.
639. **Drtina, François.** L'idée humanitaire dans l'œuvre et dans la vie de Jean Amos Comenius. *Revue internationale de l'enseignement*, 65 : 125-133, February 1913.
640. **Giraud, Jean.** Un inspecteur général d'il y a cent ans; les idées pédagogiques et administratives de Joubert. *Revue universitaire*, 22 : 230-37, March 1913.
- To be continued.
641. **Gros, J.** Lakanal et l'éducation nationale. Paris, E. André fils, 1912. 212 p. 12°.
642. **Jean-Jacques Rousseau;** leçons faites à l'École des hautes études sociales, par MM. F. Baldensperger, G. Beaulavon, I. Benrubi, C. Bouglé, A. Cahen, V. Delbos, G. Dwelshauvers, G. Gastinel, D. Mornet, D. Parodi, F. Vial. Paris, F. Alcan, 1912. 303 p. 8°. (On cover: Bibliothèque générale des sciences sociales . . . XLIII)
643. **Rubio, Federico.** Mis maestros y mi educación; memorias de niñez y juventud. Obra póstuma e inéd. . . Publicala su hija. Prólogo por el Doctor Luis Marco. Madrid, V. Tordesillas, 1912. 456 p. 4°.

PRESENT SITUATION.

644. **Galli, Maria.** L'istruzione elementare e popolare in Scandinavia. *Rivista pedagogica*, 6 : 197-214, March 1913.
645. **Harferding, Mrs. Janet.** Schools at Gary, Indiana. *Nebraska teacher*, 15 : 399-400, March 1913.
- Continued from the February number.
646. **Koeppel, George.** Observations concerning the organization of schools and certain phases of educational work in Germany. IV. Elementary school teacher, 13 : 346-62, March 1913.
- Conclusion of a series of articles on German education. This paper treats of trade schools and physical training.
647. **Raphaël, Gaston.** L'école de l'avenir. *Revue pédagogique*, 62 : 225-35, March 1913.
- A discussion of the educational situation in Germany, especially in reference to the ideas for reform promulgated by the Goethebund.

648. [Sheffield] Lord Haldane and the prospects of educational reform. Contemporary review, 103 : 305-14, April 1913.
Contrasts the English and Scotch systems of schools. Advocates the systematic development of physical education and training.
649. Weill, Louis. Les assistants étrangers. Revue universitaire, 22 : 207-9, March 1913.
A criticism of the attitude of the French teachers toward foreign students visiting the schools.
650. Williams, A. M. Education; a survey of tendencies. Glasgow, J. Maclehose and sons, 1912. 225 p. fold. chart. 8°.

PEDAGOGICS AND DIDACTICS.

651. Bourne, Randolph S. Youth and life. Boston and New York, Houghton Mifflin company, 1913. 363 p. 8°.
CONTENTS: 1. Youth. 2. The two generations. 3. The virtues and the seasons of life. 4. The life of irony. 5. The excitement of friendship. 6. The adventure of life. 7. Some thoughts on religion. 8. The mystic turned radical. 9. Seeing, we see not. 10. The experimental life. 11. The dodging of pressures. 12. For radicals. 13. The college: an inner view. 14. A philosophy of handicap.
652. Chancellor, William Estabrook. Better school teaching. Educational foundations, 24 : 454-64, April 1913.
This begins a series of articles by Dr. Chancellor on an interesting subject to educational workers, "Better school teaching." Each article will be abundantly worth reading for its own sake. The series as a whole will constitute a document of great importance.—From Editorial.
653. Grunder, Fr. La province pédagogique de Goethe et les principes des écoles nouvelles. Minerva, 5 : 76-81, March 1913.
654. John, F. Individuale und soziale erziehung. Frauenbildung, 12 : 136-42, heft 3, 1913.
Discusses the work of Gaudig, Foerster, and Kerschensteiner as representative of the diverging individualistic and socialistic forces in education and attempts to reconcile them.
655. Lane, Winthrop D. Teaching what the twentieth century wants. Survey, 29 : 867-69, March 22, 1913.
Discusses the proposed work of the Committee on school efficiency, appointed by the National council of education, at its meeting in February 1913. The author describes it as "a thoroughly revolutionary step in education, from the standpoint of social workers." "The Committee was appointed to give head and guidance to the growing demand for investigating schools and testing the efficiency of school systems." In discussing the projected work, Prof. Suzzallo said: "The greatest waste in education is not in bad teaching, but in teaching things that the twentieth century does not want."
656. Luzuriaga, Lorenzo. Direcciones actuales de la pedagogia en Alemania. Madrid [etc.] Libreria nacional y extranjera [1912] 165 p. 8°
657. Moore, Ernest C. Education at the meeting of the British Association. Educational review, 45 : 345-61, April 1913.
An important report rendered was the influence of school books upon eyesight. Standardizing of type used in text-books was recommended. An exhaustive report was also submitted on the mental and physical factors involved in education.
658. Münch, Wilhelm. Zum deutschen kultur- und bildungsleben. Fünfte sammlung vermischter aufsätze. Berlin, Weidmannsche buchhandlung, 1912. 338 p. 8°.
659. Rein, W. Die nationale einheitschule. Pädagogische warte, 20 : 306-11, March 15, 1913.
States the demand for the national *Einheitsschule* for Germany and gives graphic illustrations of proposals. To be continued.
660. Schulze, R. Experimental psychology and pedagogy for teachers, normal colleges, and universities . . . tr. by Rudolf Pintner. New York, The Macmillan company, 1912. 264 p. illus. 8°.

661. **Smith, Preserved.** The unity of knowledge and the curriculum. Educational review, 45 : 339-44, April 1913.

Author thinks that much of "the unreality, unpracticality and lack of inspiration charged not altogether unjustly against our academic instruction, is due to a want of coordination in the studies, to the disconnected way in which fragmentary information is imparted in the divers arts and sciences."

662. **Button, William Seneca.** Problems in modern education. Addresses and essays. Boston, Sherman, French & company, 1913. 257 p. 8°.

CONTENTS: 1. Attitude of the man of science toward educational criticism. 2. Some contributions of the nineteenth century to educational progress. 3. Herbert Spencer's individuality as manifested in his educational thinking. 4. Determining factors of the curriculum of the secondary school. 5. Unification of college degrees. 6. Organization of the department of education in colleges and universities. 7. Contributions of William T. Harris to the development of education in America. 8. The club woman and the development of educational public opinion. 9. Education of the modern woman. 10. Significance of Christian education in the twentieth century. 11. Some fundamental educational principles applied to the work of the Sunday school. 12. Education of the Southern negro.

663. **Weeks, Arland D.** Wanted—a theory of education. Education, 33 : 463-72, April 1913.

Writer says that "the bewilderment as to educational aims results largely from the shift from an individual to a social viewpoint." Discusses vocational education. "Here is the dilemma—how train for industries without producing undemocratic conditions? . . . It is unpleasant to think of the schools playing into the hands of exploiters of labor or becoming untrue to the tradition of equal opportunities."

664. **Wetzel, William A.** The old and the new systems of education—a contrast. Education, 33 : 503-12, April 1913.

Makes a plea for more individual instruction. The city school of the future must become a stronger social force.

665. **Yocum, Albert Duncan.** Culture, discipline and democracy. Philadelphia, Christopher Sower company, 1913. 320 p. 12°.

EDUCATIONAL PSYCHOLOGY, CHILD STUDY.

666. **Biervliet, Jules Jean.** Esquisse d'une éducation de l'attention. Paris, F. Alcan; [etc., etc., 1913] 137 p. 12°.

667. **Braunschvig, Marcel and Braunschvig, G.** Notre enfant; journal d'un père et d'une mère. Paris, Hachette et cie, 1913. 264 p. 12°.

668. **Bruce, H. Addington.** The home training of children. Outlook, 103 : 724-29, March 1913.

Discusses among other things Karl Witte's education of his son.

669. **Colvin, Stephen Sheldon and Bagley, William Chandler.** Human behavior; a first book in psychology for teachers. New York, The Macmillan company, 1913. 336 p. illus. 12°.

670. **Courtis, S. A.** The reliability of single measurements with standard tests. Elementary school teacher, 13 : 326-45, March 1913.

A criticism of a recent article, published in the Elementary school teacher, giving the results and conclusions of "a study of the reliability of single measurements in the derivation of standard scores in adding." The original tests were made on 270 eighth-grade children in the eight larger grammar schools of San Jose, Cal.

671. **G., H.** L'enseignement de la mémoire. Éducateur moderne, 8 : 116-20, March 1913.

672. **Magnusson, P. M.** Psychology as applied to education. Boston, New York [etc.] Silver Burdett and company [1913] 345 p. 8°.

673. **Pringel, L.** Beitrag zur geistigen entwicklung eines dreijährigen knaben. Zeitschrift für kinderforschung, 18 : 264-71, March 1913.

Interestingly intimate description of a real three-year old boy's mental development.

674. **Radosavljevich, Paul B.** The problem of habit formation. *American schoolmaster*, 6 : 155-63, April 1913.
675. **Terman, Lewis M. and Hocking, Adeline.** The sleep of school children: its distribution according to age, and its relation to physical and mental efficiency. *Journal of educational psychology*, 4 : 138-47, March 1913.
 "This is the first of a series of three articles in which the authors report the results of extended experimental and statistical studies on the sleep of school children."

SPECIAL METHODS OF INSTRUCTION.

676. **Brown, Robert M.** The blackboard calendar. *Elementary school teacher*, 13 : 371-78, April 1913.
 A device for teaching the rudimentary lessons in the science of the weather.
677. **Coe, Fanny E.** The second book of stories for the story-teller. Boston, New York [etc.] Houghton Mifflin company [1913] xiv, 209 p. 12°.
 Designed for service to second-grade teachers, busy mothers, and social workers.
678. **Wright, Herbert F.** Moving pictures in the schools. *Catholic educational review*, 5 : 314-21, April 1913.
 Gives arguments against introducing moving pictures into schools.

SPECIAL SUBJECTS OF CURRICULUM.

679. **Bate, Robert Shelton.** The teaching of English literature in secondary schools. London, G. Bell and sons, Ltd., 1913. 177 p. 12°.
680. **Bredvold, Louis I.** Suggestions for reconstruction in high school English. *Education*, 33 : 492-98, April 1913.
 Says that the work in English must be thoroughly humanized.
681. **Clark, Bertha May.** Living versus dead biology. *School review*, 21 : 250-53, April 1913.
682. **Cooley, Alice Woodworth.** Language teaching in the grades. Boston, New York [etc.] Houghton Mifflin company [1913] viii, 88 p. 12°. (Riverside educational monographs, ed. by H. Suzzallo)
 CONTENTS: 1. The principles of language teaching. 2. The use of literature as the basis of language teaching. 3. Some practical suggestions in the use of literature for language training. 4. The group plan of cooperative lesson units. 5. Training to habitual use of correct forms. 6. The use of textbooks.
683. **English equipment.** *English journal*, 2 : 178-84, March 1913.
 "A report presented to the National council of teachers of English, November 30, 1912."
684. **Farnsworth, Charles H.** The preparation of the music supervisor. *School music*, 14 : 25-30, March-April 1913.
 "To sum up the training of the supervisor; we find that it consists of four large groups of subjects. First, those pertaining to general education, second, those pertaining to teaching in general, third, those dealing with the profession of the musician, and fourth, those dealing with the profession of the music teacher and supervisor."
685. **Genthe, K. W.** Das system der höheren schulen Americas und der biologische unterricht. *Monatshefte für den naturwissenschaftlichen unterricht*, 6 : 145-61, heft 3, 1913.
 Continued article. In this section the author proceeds from the general description of American educational conditions to the specific description of biology instruction. Quotes many American opinions and gives typical outlines. Remarks particularly upon American emphasis of nature study.
686. **Hartwell, Ernest C.** The teaching of history. Boston, New York [etc.] Houghton Mifflin company [1913] viii, 71 p. 12°. (Riverside educational monographs, ed. by H. Suzzallo)
 A guide for history teachers of the high school and the upper grammar grades.

687. **Heath, W. R.** The demands of the business world for good English. *English journal*, 2 : 171-77, March 1913.
 "A paper read at the meeting of the New York State association of teachers of English at Buffalo, November 26, 1912."
688. **Lugg, Charles H.** The school's responsibility. *South Dakota educator*, 26 : 11-14, March 1913.
 Deals with temperance instruction.
689. **Mackinder, H. J.** The teaching of geography and history as a combined subject. *Geographical teacher*, 7 : 4-9, Spring 1913.
 Discussion, p. 9-19.
 This paper was read and discussed at the annual meeting of the Geographical society held at the University of London January 9, 1913.
690. **Magni, John A.** The decline of the classics and their place in future curricula. *Pedagogical seminary*, 20 : 23-44, March 1913.
691. **Paine, Cassie L.** A strong motivation for arithmetic work. *Elementary school teacher*, 13 : 379-86, April 1913.
 Describes work of twelve sixth-grade children, who were allowed to study in a group by themselves. They were not defective mentally, but were somewhat slow and indolent.
692. **Purin, C. M.** Die direkte methode beim modernsprachlichen unterricht. *Monatshefte für deutsche sprache und pädagogik*, 14 : 78-83, March 1913.
 The writer, a partisan of the direct method in language instruction, laments the unwillingness of American teachers to accept it. Answers vigorously various objections urged to the direct method.
693. **Bapeer, Louis W.** The problem of formal grammar in elementary education. *Journal of educational psychology*, 4 : 125-37, March 1913.
 "An experimental study which raises grave doubts as to the value of instruction in grammar in the elementary grades."
694. **Read, C. C.** A high school Latin course for high school pupils. *Virginia journal of education*, 6 : 252-58, March 1913.
 Read before the Classical association of Virginia, November 1912.
695. **Rowell, Percy E.** The status of science teaching in the elementary schools of the United States. *Elementary school teacher*, 13 : 387-404, April 1913.
 Writer says that instruction in general science, and in the methods of teaching such in the grades, should be given in every normal school of the country.
696. **Ryan, John.** A school wireless station. *Irish educational review*, 6 : 321-28, March 1913.
 A brief account of the practical work connected with setting up a wireless station in a college.
697. **Skinner, Hilda M.** Needlework in relation to character. *School world*, 15 : 124-26, April 1913.
698. **Snow, William B.** Modern languages in American public schools. *Educational review*, 45 : 362-75, April 1913.
 Argues for better-prepared and better-paid teachers.
699. **Zidler, Gustave.** L'enseignement du français par le latin. Paris, Vuibert; Montreal, Beauchemin [1912] 40 p. 8°.
 Mémoire présenté au Premier congrès de la langue française en Amérique,—Québec, 1912.

KINDERGARTEN AND PRIMARY SCHOOL.

700. **Black, Mae Virginia.** Phases of the Montessori system of teaching. *Pennsylvania school journal*, 61 : 427-33, March 1913.
 Address delivered before the Child study round table of the Pennsylvania state educational association, December 27, 1912.
701. **Boone, Richard Gause.** The Montessori method. *Sierra educational news*, 9 : 270-79, April 1913.
 Continued from February issue.
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702. **Hardy, Lileen.** The diary of a free kindergarten. With an introduction by Kate Douglas Wiggin. Boston and New York, Houghton Mifflin company, 1913. 175 p. illus. 12°.
703. **Morgan, S. A.** The Montessori method. An exposition and criticism. Toronto, L. K. Cameron, 1913. 72 p. illus. 8°. (Ontario department of education. Bulletin no. 1, 1912)
Contains numerous illustrations, some taken from the American translation of Dr. Montessori's work, and others furnished by the House of childhood of New York, the firm which manufactures the didactic apparatus.
Dr. Morgan, the author of this publication, is principal of the Normal school at Hamilton, Ontario, and an experienced teacher of psychology.
704. **Murray, E. R.** A story of infant schools and kindergartens. London, Bath and New York, Sir I. Pitman & sons, ltd. [1913] ix, 145 p. 12°
705. **Stevens, Ellen Yale.** A guide to the Montessori method. New York, F. A. Stokes company, 1913. xii, 240 p. illus. 12°.

RURAL EDUCATION.

706. **Betts, George Herbert.** New ideals in rural schools. Boston, New York [etc.] Houghton Mifflin company [1913] x, 128 p. 12°. (Riverside educational monographs, ed. by H. Suzzallo)
CONTENTS: 1. The rural school and its problem. 2. Social organization of the rural school. 3. Curriculum of the rural school. 4. Teaching of the rural school.
Written from the point of view of the local community immediately related to, and concerned with, the rural school; and consequently emphasizes the things that ought to be done by the local authorities—parent, trustee, and teacher.
707. **Brown, C. J.** Grade limitation for one-room schools. School news and practical educator, 26:329-30, 367-68, March, April 1913.
The author is the state supervisor of rural schools of Louisiana.
708. **Copeland, A. B.** County administration of rural schools. Colorado school journal, 28:17-18, March 1913.
709. **Lawrence, Frances E.** The daily program in a large rural school. South Dakota educator, 26:21-24, April 1913.
710. **Schwering, Benjamin.** Consolidation of country schools. Progressive teacher, 19:33-35, April 1913.
Gives the advantages of the consolidated school, taking as examples the John Swaney school of Putnam county, Illinois, and the Lee's Creek school of Lee's Creek, Ohio.
711. **Stewart, Joseph S.** A plan for the small rural or village high school. High school quarterly, 1:133-35, April 1913.
Gives a suggestive course of study.
712. What the leaders are saying about county supervision. A symposium. Texas school magazine, 15:13-14, March 1913.

SECONDARY EDUCATION.

713. **Aiton, George B.** Minnesota high school situation. Journal of education, 77:381, April 3, 1913.
"This survey of the high school situation by State Superintendent Aiton of Minnesota is from his annual report recently given out—a report which is full of suggestion and significant statistics."—Ed.
714. **Rapeer, Louis W.** The secondary school teachers of Prussia. Education, 33:478-87, April 1913.

715. **Wheeler, George.** The six-year high school. School review, 21:239-45, April 1913.

Writer thinks there is "a rather strong drift toward an ultimate settling upon a six-year elementary school course, followed by a six-year high school course, but with the latter divided into two rather distinct periods of three years each." Summarizes the advantages of the 6-3-3 plan.

TEACHERS: TRAINING AND PROFESSIONAL STATUS.

716. **Blessing, C. W.** Essential qualifications of a teacher. American education, 16:328-31, March 1913.

717. **Boyden, Albert Gardner.** The teacher in modern life. Bridgewater, Mass., A. H. Willis, printer, 1913. 287, v p. 8°.

"The purpose of this volume is to set forth in brief topical outline the scope and aim of the work of the modern teacher, how he is to prepare himself for his great work, and how he is to come into the skillful practice of his art."—Pref.

718. **Brittain, M. L.** System of certification for Georgia teachers adopted by the State board of education. High school quarterly, 1:174-78, April 1913.

719. **Coffman, Lotus D.** Mobility of teaching population in relation to economy of time. School and home education, 32:292-96, April 1913.

Paper read before Department of superintendence, Philadelphia, February 28, 1913.

720. **Felmley, David.** The new normal school movement. Educational review, 45:409-15, April 1913.

Writer says that high school teachers should be trained in the same environment as elementary teachers.

721. **Jones, H. Bedford.** The personal influence of the teacher. Education, 33:499-502, April 1913.

722. **Robertson, C. B.** The training of secondary school teachers. School review, 21:225-34, April 1913.

Presents a scheme for solving the problem of furnishing practice teaching for secondary teachers in training.

723. **Sanders, W. H.** A study of professional work as presented in the state normal schools of the United States. Pedagogical seminary, 20:48-55, March 1913.

"Data upon which this discussion is based were obtained by a questionnaire sent to all the state normal schools in the United States."

HIGHER EDUCATION.

724. **Armstrong, A. C.** German culture and the universities. Educational review, 45:325-38, April 1913.

Writer says that the German universities constitute "a principal bulwark of ideal culture in our age." But this does not mean that they have failed to profit by the material progress of the day.

725. **Canby, Henry Seidel.** The professor. Harper's magazine, 126:782-87, April 1913.

A character study of the modern college professor.

726. **Carnegie foundation for the advancement of teaching.** Seventh annual report of the president and of the treasurer. New York city, October 1912. 194 p. 4°.

Contains: Part I. The business of the year. Part II. Current educational problems, including College entrance requirements, Admission to advanced standing, Medical progress, University and college financial reporting, Advertising as a factor in education, Education and politics, Sham universities.

727. **Cattell, J. McKeen.** University control. New York and Garrison, N. Y., The Science press, 1913. 484 p. 8°.
Includes a series of 299 unsigned letters by leading men of science holding academic positions, and articles by Joseph Jastrow of the University of Wisconsin, George T. Ladd of Yale university, John J. Stevenson of New York university, J. E. Creighton of Cornell university, J. McKeen Cattell of Columbia university, George M. Stratton of the University of California, Stewart Paton of Princeton, John Jay Chapman of New York, James P. Munroe of Boston, and Jacob Gould Schurman of Cornell university.
728. **Fuld, Leonhard Felix.** Kings college alumni. New York, 1913. 66 p. ports. 8°.
Reprinted from Columbia university quarterly. Contains biographical sketches of alumni from the class of 1768 to that of 1776 inclusive.
729. **Gerrans, H. T.** Oxford university finance. Educational review, 45:376-87, April 1913.
Shows the sources of the incomes of the University and of the colleges, and the powers which they possess of dealing with their revenues.
730. **Homan, Fletcher.** The sphere of the independent college or university. Oregon teachers monthly, 17:393-95, March 1913.
Address delivered before the Oregon state teachers' association at Portland, in December, 1912
731. **Lasserre, Pierre.** La doctrine officielle de l'université. Critique du haut enseignement de l'état. Défense et théorie des humanités classiques. 3. ed. Paris, Mercure de France, 1913. 506 p. 12°.
732. **Lovejoy, Arthur O.** The metamorphosis of the Carnegie foundation. Science, n. s. 37:546-52, April 11, 1913.
Criticises the pension scheme of the Carnegie foundation for the advancement of teaching.
733. **Morris, Edward P.** The college and the intellectual life. Yale review, 2:456-69, April 1913.
734. **Schiller, F. C. S.** Oxford and the working man. Fortnightly review, 93: 766-78, April 1913.
Meets objections raised against the university by the working classes.
735. **Stevenson, John J.** Some random thoughts concerning college conditions. Popular science monthly, 82 : 397-411, April 1913.
Author says that "the college authorities should demand less in mass but more of thoroughness from the preparatory schools." Argues that there should be a "definite legal determination as to the meaning of the term 'college.'" Advocates the repealing of the charters of many schools which have the power to grant degrees.
736. **Stockbridge, Frank P.** A university that runs a state. World's work, 25 : 699-708, April 1913.
Work of the Wisconsin State University. "Brings exact scientific information and its application, not only to the affairs of the individual. but to those of the whole community."
737. **Waterlow, Sydney Philip Perigal, ed.** In praise of Cambridge; an anthology in prose and verse. London, Constable and company, ltd., 1912. 221 p. 8°.
738. **Woodbridge, Frederick J. E.** The present status of the degree of doctor of philosophy in American universities. Columbia university quarterly, 15 : 126-32, March 1913.
"Paper read at the fourteenth annual meeting of the Association of American universities Philadelphia, Pa., November 7-9, 1912."

SCHOOL ADMINISTRATION.

739. **Barrett, S. M.** Efficient supervision. Oklahoma school herald, 21: 13-16, March 1913.
Gives four principles of school supervision.

740. **Chancellor, William Estabrook.** The New York school inquiry. School journal, 80 : 166-70, March 1913.
741. **Elliott, Edward C.** The report of the New York school inquiry: the system of general supervision and the board of examiners. Elementary school teacher, 13 : 320-25, March 1913.
A general résumé without criticism.
742. **Ellis, Alston.** Better financial support of the public schools. Ohio teacher, 33 : 366-72, March 1913.
"A paper read before the Ohio school improvement federation, Columbus, Ohio, December 27 1912."
743. **M., H.** Zur reorganization der Basler volksschule. Schweizerische lehrerzeitung, 58 : 81-83, March 1, 1913.
Discusses the proposal to detach the fifth and sixth school years from the *Sekundarschule* and assign them to the *Primarschule*.
744. **Nudd, Howard W.** A description of the Bureau of compulsory education of the city of Philadelphia, showing how its organization and administration bear upon the problems of compulsory education in the city of New York. New York, Public education association of the city of New York, 1913. 62 p. 8°.
745. **Pritchett, Henry S.** A pension system for public schools. Independent, 74 : 617-21, March 20, 1913.
Writer discusses the desirability of pensions for public school teachers, and outlines a feasible plan for state action.
746. **Redway, Jacques W.** Knocking the New York city schools. Journal of education, 77 : 371-72, April 3, 1913.
747. **Sinclair, William M.** What is wise economy in school administration. Wyoming school journal, 9 : 173-79, March 1913.
748. **Strayer, George Drayton and Thorndike, Edward L.** Educational administration. Quantitative studies. New York, The Macmillan company, 1913. xii, 391 p. 8°.
CONTENTS: Part I, Studies of the students. Part II, Studies of the teaching staff. Part III, Studies of the organization of schools and courses of study. Part IV, Means of measuring educational products. Part V, School finance.
"The selections quoted or summarized in this volume are deliberately chosen from the work that has been done at Teachers college, Columbia university, in the application of quantitative methods to administrative problems."—Pref.

SCHOOL MANAGEMENT.

749. **Barker, James F.** A home-room plan. School review, 21:235-38, April 1913.
Adoption of the plan, says the writer, fosters the growth of school spirit, in place of class spirit, and serves to increase control in all school activities.
750. **Downing, Elliot R.** A study of an attempt at uniformity in grading students. School science and mathematics, 13:290-93, April 1913.
Gives the results of an investigation at the Northern state normal school of Michigan to determine what degree of uniformity there was in the various departments in grading the students.
751. **Garrett, T. H.** A longer school day. High school quarterly, 1:149-51, April 1913.
The author believes that we shall eventually have to come to a double daily session of seven hours.
752. **Gayler, G. W.** Elimination from a different angle. Psychological clinic, 7:11-16, March 15, 1913.
Gives specific and helpful plans for holding children in school, as carried out in Canton, Ill.

753. **Gray, Clarence Truman.** Variations in the grades of high school pupils. Baltimore, Warwick & York, 1913. 120 p. 12°. (Educational psychology monographs, ed. by G. M. Whipple. no. 8)
Mr. Gray's "work should interest all teachers and more particularly all school administrators, because he not only shows clearly how unreliable are the grades commonly given by teachers and makes evident the need of instruction and training in grading, but also presents a relatively simple method by means of which any high-school principal can study the condition of the grading in his own school."—Editor's pref.
754. **McBee, Percy C.** Bridging the gap. West Virginia school journal, 42:10-12, April 1913.
Mentions four difficulties in bridging the gap between the eighth grade and the high school, and suggests ways in which these difficulties may be removed or lessened.
755. **Starch, Daniel and Elliott, Edward C.** Reliability of grading work in mathematics. School review, 21:254-59, April 1913.
Investigation with a geometry paper, written as a final examination by a pupil in one of the largest high schools in Wisconsin.

SCHOOL ARCHITECTURE.

756. **Cheney, Charles Henry.** The Oakland school building inquiry. American school board journal, 46:9-11, 56, April 1913.
To be concluded in the May issue.
"The first comprehensive study of the problems of school architecture, as applied to an important city, by an expert commission representing the widely differing view points of school administrator, supervisor, teacher, architect, sanitary engineer, and sociologist was made recently in Oakland, Cal. The very interesting conclusions arrived at by the Oakland commission and the important standards evolved by them are here summarized by an experienced architect and published for the first time."—Editor's note.
757. **Dunlop, John Y.** Primary schools in Scotland. American school board journal, 46:17-19, 58-59, April 1913.
"While the United States has made wonderful progress in the design and construction of schoolhouses, we can learn much from the European countries. Most suggestive for American architects and educators are some of the standards of school architecture adopted by the Scottish Education board. How these standards are embodied in typical elementary schools is here interestingly described by a leading architect."—Editor.
758. **Sturgis, R. Clipston.** The schoolhouse department of Boston, Mass. American school board journal, 46:12-13, 57-58, April 1913.
"How shall cities select architects for new schoolhouses and how shall the construction of these buildings be controlled. Mr. R. Clipston Sturgis presents Boston's most suggestive reply to this question. The opinions and conclusions of the author are of more than current value because of his service on the Boston board of schoolhouse commissioners and of his very wide observations as a schoolhouse architect."—Editor.

SCHOOL SANITATION AND HYGIENE.

759. **Bancroft, Jessie H.** The posture of school children, with its home hygiene and new efficiency methods for school training. New York, The Macmillan company, 1913. xii, 327 p. illus. 8°.

The term "posture" is used in this book to denote the habitual carriage of the body, especially in the erect position.
760. **Brandenburg, W. A.** Sanitation and health in rural schools. Oklahoma school herald, 21:10-12, April 1913.
Criticizes the sanitation in rural schools and suggests remedies for bettering it.
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787. **Buchanan, Charles M.** The cultural value of vocational training. Southern workman, 42:203-208, April 1913.
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804. **Meier, William Herman Dietrich.** School and home gardens. Boston, New York [etc.] Ginn and company [1913] v, 319 p. front. (col.) illus. 8°.
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American schoolmaster, State normal school, Ypsilanti, Mich.
American teacher, 225 Fifth avenue, New York, N. Y.
Arkansas school journal, Peoples building, Little Rock, Ark.
Atlantic educational journal, 19 West Saratoga street, Baltimore, Md.
Catholic educational review, Washington, D. C.
Colorado school journal, 230 Railway Exchange building, Denver, Colo.
Columbia university quarterly, Columbia university press, New York, N. Y.
Contemporary review, 249 West Thirteenth street, New York, N. Y.
Craftsman, 41 West Thirty-fourth street, New York, N. Y.
Éducateur moderne, Paris, France.
Education, 120 Boylston street, Boston, Mass.
Educational foundations, 31-33 East Twenty-seventh street, New York, N. Y.
Educational review, Columbia university, New York, N. Y.
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Fortnightly review, 249 West Thirteenth street, New York, N. Y.
Frauenbildung, Leipzig, Germany.
Geographical teacher, London, England.
Good housekeeping magazine, 381 Fourth avenue, New York, N. Y.
Harper's magazine, Franklin square, New York, N. Y.
High school quarterly, University of Georgia, Athens, Ga. (Prof. J. S. Stewart, editor.)
Independent, 130 Fulton Street, New York, N. Y.
Irish educational review, Dublin, Ireland.
Journal of education, 6 Beacon street, Boston, Mass.
Journal of educational psychology, Warwick & York, inc., Baltimore, Md.
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Journal of political economy, University of Chicago press, Chicago, Ill.
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Körperliche erziehung, Vienna, Austria.
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Lehrerin, Leipzig, Germany.
Library journal, 298 Broadway, New York, N. Y.
McClure's magazine, Fourth avenue and Twentieth street, New York, N. Y.
Minerva, Ostende, Belgium.
Monatshefte für den naturwissenschaftlichen unterricht, Leipzig, Germany.
Monatshefte für deutsche sprache und pädagogik, 558-568 Broadway, Milwaukee, Wis.
Nebraska teacher, 1126-1128 Q street, Lincoln, Nebr.
Normal instructor, Dansville, N. Y.
Ohio educational monthly, 55 East Main street, Columbus, Ohio.

Ohio teacher, 81-87 North Third street, Columbus, Ohio.
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 Oregon teachers monthly, Salem, Oreg.
 Outlook, 287 Fourth avenue, New York, N. Y.
 Pädagogische warte, Leipzig, Germany.
 Parents' review, London, England.
 Pedagogical seminary, Worcester, Mass.
 Pennsylvania school journal, Lancaster, Pa.
 Popular educator, Popular educator company, Boston, Mass.
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 Progressive teacher, Nashville, Tenn.
 Psychological clinic, Woodland avenue and Thirty-sixth street, Philadelphia, Pa.
 Public libraries, 37 South Wabash avenue, Chicago, Ill.
 Religious education, 332 South Michigan avenue, Chicago, Ill.
 Revue internationale de l'enseignement, Paris, France.
 Revue pédagogique, Paris, France.
 Revue universitaire, Paris, France.
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 Saturday evening post, Curtis publishing company, Philadelphia, Pa.
 School and home education, Bloomington, Ill.
 School education, 717 Hennepin avenue, Minneapolis, Minn.
 School journal, 31-33 East Twenty-seventh street, New York, N. Y.
 School music, Keokuk, Iowa.
 School news and practical educator, Taylorville and Chicago, Ill.
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 School science and mathematics, Mount Morris, Ill.
 School world, London, England.
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 Science, Substation 84, New York, N. Y.
 Sewanee review, Sewanee, Tennessee.
 Sierra educational news, 50 Main street, San Francisco, Cal.
 South Dakota educator, Mitchell, S. D.
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 Survey, 105 East Twenty-second street, New York, N. Y.
 Texas school magazine, 1304 Commerce street, Dallas, Tex.
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 West Virginia school journal, 346 Front street, Morgantown, W. Va.
 Wisconsin journal of education, Parker educational co., Madison, Wis.
 World's work, Doubleday, Page & Co., Garden City, N. Y.
 Wyoming school journal, Laramie, Wyo.
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UNITED STATES BUREAU OF EDUCATION
BULLETIN, 1913, NO. 16 - - - - - WHOLE NUMBER 524

ANNOTATED BIBLIOGRAPHY
OF
MEDICAL INSPECTION AND HEALTH
SUPERVISION OF SCHOOL CHILDREN
IN THE UNITED STATES FOR
THE YEARS 1909-1912



BULLETIN OF THE BUREAU OF EDUCATION.

(Note.—With the exceptions indicated, the documents named below will be sent free of charge upon application to the Commissioner of Education, Washington, D. C. Those marked with an asterisk (*) are no longer available for free distribution, but may be had of the Superintendent of Documents, Government Printing Office, Washington, D. C., upon payment of the price stated. Documents marked with a dagger (†) are out of print. Titles are abbreviated.)

1909.

- No. 1. Facilities for study and research in Washington. Arthur T. Hadley.
- No. 2. Admission of Chinese students to American universities. John Fryer.
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- *No. 4. The teaching staff of secondary schools. E. L. Thorndike. 10 cts.
- No. 5. Statistics of public, society, and school libraries in 1908.
- *No. 6. Instruction in the fine and manual arts. Henry T. Hatley. 15 cts.
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- *No. 8. A teacher's professional library. Classified list of 100 titles. 5 cts.
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- *No. 11. Statistics of State universities, etc., 1908-9. 5 cts.

1910.

- No. 1. Reform in teaching religion in Saxony. Arley Barthlew Shaw.
- No. 2. State school systems: October 1, 1908, to October 1, 1909. E. C. Elliott.
- †No. 3. List of publications of the United States Bureau of Education, 1887-1910.
- No. 4. The biological stations of Europe. Charles Atwood Kelsoid.
- No. 5. American schoolhouses. Fletcher B. Driscoll.
- *No. 6. Statistics of State universities, etc., 1909-10. 5 cts.

1911.

- *No. 1. Bibliography of science teaching. 5 cts.
- No. 2. Opportunities for graduate study in agriculture. A. C. Monahan.
- *No. 3. Agencies for improvement of teachers in service. W. C. Ruediger. 16 cts.
- *No. 4. Report of the commission to study the public schools of Baltimore. 10 cts.
- No. 5. Age and grade census of schools and colleges. George Drayton Strayer.
- No. 6. Graduate work in mathematics in universities.
- No. 7. Undergraduate work in mathematics in colleges and universities.
- No. 8. Examinations in mathematics.
- No. 9. Mathematics in technological schools of collegiate grade.
- No. 10. Bibliography of education for 1909-10.
- *No. 11. Bibliography of child study for the years 1908-9. 10 cts.
- No. 12. Training of teachers of elementary and secondary mathematics.
- No. 13. Mathematics in elementary schools.
- No. 14. Provision for exceptional children in the public schools.
- No. 15. The educational system of China as recently reconstructed. H. E. King.
- No. 16. Mathematics in public and private secondary schools.
- *No. 17. List of publications of the U. S. Bureau of Education, October, 1911. 5 cts.
- No. 18. Teachers' certificates (laws and regulations). Harlan Updegraff.
- No. 19. Statistics of State universities, etc., 1910-11.

Continued on page 2 of cover.

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OF
MEDICAL INSPECTION AND HEALTH
SUPERVISION OF SCHOOL CHILDREN
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UNIV. OF
CALIFORNIA

LETTER OF TRANSMITTAL.

DEPARTMENT OF THE INTERIOR,
BUREAU OF EDUCATION,
Washington, January 1, 1913.

SIR: In the older Greek education one-half of the school day was regularly spent by the Greek boys in exercises and games designed to make them strong and also to teach them the mental significance of sound health. During the middle ages this high ideal of soundness and sanity was lost, and even looked upon as spiritually dangerous.

There is emerging to-day a new health consciousness. We now know that diseases are not providentially sent, but are the results of natural forces which man may overcome. We know, too, even better than the Greeks, that physical soundness and mental sanity are vitally related. Hence, we realize that mental progress demands physical progress.

Medical inspection of school children has for its chief purpose the early discovery of physical defects or disease, so that such defects may be corrected in early life, or that contagion may be reduced to a minimum. No educational movement in modern times has had more vital relations to the children, to the homes they represent, and to the Nation, than medical inspection of school children and the general hygienic movement it typifies.

The work began in this country less than 20 years ago, but we are now in the midst of the most rapid development of this part of the public educational service. Information is eagerly sought from all parts of the country.

The manuscript hereby transmitted, entitled "Annotated Bibliography of Medical Inspection and Health Supervision of School Children in the United States for the Years 1909-1912," was compiled in the Division of School Hygiene and Sanitation of this bureau. It is a digest of the chief literature on this subject published in America during the past four years, and will be very helpful, especially to school and health officers. I therefore recommend its publication as a bulletin of the Bureau of Education.

Very respectfully,

P. P. CLAXTON,
Commissioner.

The SECRETARY OF THE INTERIOR.

70 .viii
Abstract

ANNOTATED BIBLIOGRAPHY OF MEDICAL INSPECTION AND HEALTH SUPERVISION OF SCHOOL CHILDREN.

GENERAL REFERENCES.

ALLEN, Arch Turner. The school and physical welfare of the child. In North Carolina association of city public-school superintendents and principals. Proceedings, 1911. Raleigh, Edwards & Broughton printing co., 1911. p. 19-27.

"It is the business of the school to see that the physical surroundings of the child comply in every detail with the laws of healthful living. The room should be large; the air space ample; the ventilation continuous; the light free from shadows and properly directed; the sittings accommodated to the child's size and not to the grade; the water pure and of the right temperature, and sanitary arrangements for using it; the toilets clean; the playgrounds large and dry; and plenty of time to use them . . .

"The school is under urgent obligations legally as well as morally to see that it does not become a distributing center for contagious diseases. . . .

"When we consider what medical inspection will do for the schools, its cost becomes a legitimate school expenditure. It is just as much so as the salary of the teacher. . . .

"The three essential things in this inspection are the following:

"1. To know the health records of the community.

"2. To know as far as possible the physical condition of the children who attend school.

"3. To follow up this knowledge by having as many of them treated as we can find a means for, and to use these health records in every helpful way possible."

American medical association. Report of committee on administrative methods of physical examination of school children. *Its Journal*, 57: 1750-51, November 25, 1911.

Signed: Ernest B. Hoag, M. D. and Everett C. Beach, M. D.

Recommends: That city and county boards of education should secure the services of trained medical inspectors sufficient in number to instruct all elementary school teachers in making preliminary physical examinations or health surveys; that city boards of education maintain departments of medical inspection, the heads of such departments to be medically trained men; that the cities be divided into districts with a medical inspector in charge of each district.

That each child be given a physical examination each year, preferably at the beginning.

That this examination be sufficiently thorough to detect defects that interfere, or are liable to interfere, with the health, growth, and development of the child, such examinations to include the examination of the eye, ear, mouth, nose, throat, teeth, heart, lungs, thorax, shoulders, spine, hips, inguinal region, feet, nutrition, mentality, and nervous system.

That the preliminary examination in the elementary schools be made by the teacher or nurse and in the high schools by the director of physical education or one of his assistants.

That the supplementary physical examination be made in the elementary schools by the trained medical inspector, and in the high schools by the director of physical education if he be medically trained; otherwise by the medical inspector; that a careful record be kept of the results of the preliminary and supplementary examinations to include only such data as would be of future use to the teacher or director.

That these records be kept by the teacher and passed on with the promotion slip, a duplicate being retained in the office of the health inspector.

That whenever feasible the physical examination be conducted preferably by examiners, employed by and under the direction of the board of education. When this is not feasible the appointees of the board of health should be approved by the board of education.

That a greater effort be made to establish hearty co-operation between the school physician, the teacher, the family physician, the home, and the free dispensaries in following up and in securing the correction of physical defects.

American medical association. Report of committee on medical inspection of schools. *Its Journal*, 57: 1751-57, November 25, 1911.

Chairman, George L. Lealie.

"Two divisions of this field of work are advisable:

"A. *Under the control and direction of boards of education*—that part of the work essential for the intelligent handling of pupils and students throughout their period of educational training; and for the maintenance of hygienic environment and hygienic activity—the field of *educational hygiene*.

"B. *Under the control and direction of boards of health*—that part of the field of work concerned with the care and control of contagious and infectious diseases as a part of the field of *public health*.

"EDUCATIONAL HYGIENE—UNDER THE CONTROL AND DIRECTION OF BOARDS OF EDUCATION.

"PURPOSES OF THE WORK.

"1. The establishment of biennial, annual, and, when necessary, more frequent skilled physical and developmental examinations of pupils and students by a staff of experts. The establishment of initial examination of pupils by the teaching force of the schools, as far as the teaching force is qualified, prior to the skilled examinations by experts.

"2. By effective action, based on the data of these examinations, to secure (a) the correction of physical anomalies and thus remove the growth-barriers of children and youths, and (b) whenever possible and practicable, to adjust educational activities to meet the requirements of physical and mental health, growth and development, and thus establish a special field of education for the maintenance of continuous health and development supervision of pupils and students.

"3. To maintain a scientific and systematic study of mental retardation and mental deviation of pupils and students by skilled examination, and whenever possible and practicable, by skilled training in special schools.

"4. To establish skilled physical and health examinations of candidates for teachers' positions prior to their election to determine vital fitness for their work, and thereafter to maintain continuous supervision of health and efficiency to teachers as related to the work of the schools.

"5. (a) To organize and supervise courses of technical instruction in hygiene for pupils, students and teachers, in the means of conservation of physical and mental health, growth and development; in the means of correction and prevention of defects, disease and degeneracy; (b) whenever necessary for efficiency, to give practical and technical instruction to the teaching force of the schools, while engaged in teaching, in the initial physical and developmental examination of pupils; and in the skilled physical and developmental and psychoclinical examination of exceptional pupils, abnormal and supernormal.

"6. To establish and maintain well-equipped medical anthropometric and psychoclinical laboratories in the public schools which shall afford opportunity and equipment—

"(a) for sufficiently skilful medical, anthropometric and psychoclinical examination of exceptional pupils and of all pupils requiring special examination.

"(b) for such technical training of teachers in the laboratory and experimental phases of educational work, connected with the physical and mental examination of pupils, in clinical psychology and in experimental pedagogy as is essential for the intelligent handling of pupils.

"(c) for essential work in hygiene and sanitation.

"7. To exercise expert sanitary supervision in the planning and maintenance of school buildings and grounds.

"8. To bring about the establishment of dental and medical clinics for pupils whose parents are financially unable to provide essential medical and dental aid.

"9. Whenever possible and practicable, to cooperate with State, county, and city health officers in the detection of and reporting of contagious diseases.

"10. Each department of educational hygiene to constitute a bureau of practical investigation and research in educational hygiene, and as such to cooperate with State bureaus of educational hygiene whose functions will or ought to be the organization and supervision of State-wide work and investigation in this special field of education—looking forward to the establishment also of a national bureau of educational hygiene.

"An *appropriate grouping of pupils*.—Based on the data of physical and developmental examinations which ought to follow the examination of pupils and students. 1. Those for whom medical and dental aid is essential. 2. Those whose respiratory or circulatory systems are defective or are poorly developed, for whom a larger amount of out of door life and physical activity is essential, or other modification of school activities necessary. 3. Those whose nervous systems are defective or poorly developed and who require an unusual amount of out of door life, physical activity, special care and skilled training. 4. The segregation of pupils requiring an unusual amount of physical activity for possible mental growth—both sexes. 5. Segregation of pupils of truancy and criminal tendencies or otherwise showing more or less degeneracy, and assignment to special schools with special training. 6. Segregation of mentally defective pupils and assignment to special schools. 7. The segregation of supernormal pupils and assignment to special schools. 8. As far as practicable, the grouping of pupils in accordance with development age.

"In this program, school nurses are assistants to the staff. Their field work is essentially as follows:

"To assist members of the staff in the skilled examination of pupils and otherwise as assistance is needed; to assist teachers in making preliminary surveys of their pupils and in giving initial examina-

tions, notifying parents of essential needs of pupils, etc.; visiting parents and in all justifiable ways establishing effective cooperation between home and school. Further, the function of the school nurse is that of the social educator in the field of hygiene. As such, the work of the school nurse is one of high order.

"The staff of experts, the teaching force of the schools and school nurses, *working from the standpoint of education*, form an educational corps to secure the effective cooperation of home, school and school authorities in meeting the requirements of the physical and mental health and growth of pupils. When educational means fail, the law must remedy instances of neglect of health and growth of children.

"Each department of educational hygiene should act, as far as practicable and consistent with the required established work, as a bureau of investigation and research.

"The functions of departments of educational hygiene are twofold: 1. Carrying out certain established work of the schools. 2. Investigation and research of problems of health and development, of clinical psychology and of experimental pedagogy.

"Two classes of experts stand out as preeminently qualified for work in this special field of education: 1. The psychologist-educator. An expert in child hygiene, in educational and clinical psychology and in practical experimental pedagogy; skilled in physical and mental diagnosis, of normal and abnormal growth and development and having a knowledge of elementary medicine; a thoroughly trained, broad-gauged expert in education. 2. The skilled physician who has had sufficient training and acquaintance with educational work.

"Your committee, therefore, joins in a recommendation already made by Dr. Terman of the department of education of Leland Stanford university, essentially as follows: That steps be taken to bring about a conference of representatives from the United States department [bureau] of education, the National education association, the American medical association, the American institute of homeopathy and other national medical associations and the Russell Sage foundation for child welfare, which committee, after joint consideration of the problems involved, shall formulate and recommend alternative systems of educational hygiene which in time would be accepted as standard requirements in this special field of education."

American school hygiene association. Report of Committee on status of medical inspection of school children throughout the United States. *In its Proceedings*, 1910. Springfield [Mass.] American physical education review, 1910. p. 176-83.

Chairman, John J. Cronin, M. D.

A questionnaire [see Appendix, p. 129] was prepared by the committee and sent to 50 places. Of these, 14 submitted forms properly made out. All declared that some form of organized medical inspection of school children was adopted. All places have a system of following up and controlling the cases found with contagious disease and physical abnormality. Particularly in towns, the percentage of children brought under treatment is very high—75 to 100 per cent. In one place only are the parochial schools under municipal supervision. General inspection for contagious conditions is made regularly once a year, and thereafter as the emergency arises. The physical examination is made on selected cases. The number of children under the care of one inspector varies from 900 to 10,000. Not one place provides baths for the use of school children in the school building, and only two places report facilities for bathing in municipal baths. Of the 14 places reported, 13 are supervised under the direction of departments of education. Seven places report some form of instruction in the care of children's teeth.

American school hygiene association. [Report of Committee on] Status of medical inspection in the United States. *In its Proceedings*, 1911. Springfield, Mass., American physical education review, 1911. p. 144-48. tables.

Chairman, John J. Cronin, M. D.

About 1,400 questionnaires were sent out.

Returns were received as follows: 308 from North Atlantic States; 46 from South Atlantic States; 67 from South Central States; 286 from North Central States; and 52 from Western States. The chairman says: "In concluding this statistical report, I am constrained to inquire why is it that only 337 places of 758 reporting have made any attempt to protect the health of their school children."

AYRES, Leonard Porter, comp. Medical inspection legislation. New York City, Russell Sage foundation, Dept. of child hygiene [1911] 53 p. map. 8°. ([Russell Sage foundation. Dept. of child hygiene. Pamphlet] Health, education, recreation. no. 99)

Principal features of State laws and regulations providing for medical inspection, 1911: p. 6.

Abstracts of laws and regulations: p. 7-11.

AYRES, Leonard Porter. Physical defects and school progress. American physical education review, 14 : 197-206, April 1909. tables.

Also in Hygiene and physical education, 1 : 599-606, September 1909; and with some additional tables and paragraphs in his *Laggards in our schools*. New York, Charities publication committee, 1909. p. 117-31.

Reprinted. Russell Sage foundation. Department of child hygiene. No. 41.

The interrelation of physical defects as discovered by medical inspection, and retardation of school children as found in statistical studies of Camden, N. J., New York City, and Philadelphia.

"In the two Philadelphia examinations the percentage of defectiveness among 'exempt' and 'non-exempt' children is very similar. The Camden investigation showed very little difference as regards vision and hearing between retarded children and those of normal age. The New York examinations showed that the retarded children have on the whole fewer defects than those of normal age, but it goes farther than this. It establishes the important principle that, except in the cases of vision, older children have fewer defects, and . . . that when children who are badly retarded are compared with normal children and very bright children in the same age groups so that the diminishing of defects through advancing age does not enter as a factor, the children rated as 'dull' are found to have somewhat higher percentages of each sort of defect than the normal and bright children. Here again defective vision must be excepted"

"Physical defectiveness does have a bearing on the progress of children, but . . . physical defects constitute a cause, not the cause of retardation."

CLAPP, Raymond G. How can our physical examinations be made more effective? Hygiene and physical education, 1 : 76-78, 370-72, April, June 1909.

"I have come to the conclusion that a medical examination should be required annually of every college student; that medical consultation and advice should be free to all students; that the health of the general student body should be protected by the early determination and proper control of all cases of venereal disease, tuberculosis, and other infectious diseases; that each student should be carefully watched to see that he does not impair his health by overwork; that there should be practically no medical or surgical treatment given which will arouse outside antagonism; and that all this supervision should be made by the department of physical education."

Conference on "Diseases among school children, and the remedy." Boston medical and surgical journal, 166 : 621-27, April 25, 1912.

Diseases of the mouth, throat, and chest, by Richard C. Cabot; Malnutrition, by George S. C. Badger; Diseases of the skin, by C. Morton Smith; Orthopedic defects and rickets, by Joel E. Goldthwait; Nervous and mental disorders in the schools, by Arthur Willard Fairbanks.

Conditions in Boston: Approximately 4,000 school children suffering from malnutrition. From September 13 to December 31, complete physical examinations were made in the schools, and 11,691 children with skin diseases were found.

Papers read under the auspices of the Boston association for the relief and control of tuberculosis, January 31, 1912.

COPLAN, M. Medical inspection of our public schools. Pediatrics, 23: 465-74, August 1911.

References: p. 473-74. Also in Ohio medical journal, 7: 443-47, September 1911.

Emphasizes the need for the proper teaching of sex hygiene in the public schools. "The medical inspector should be one of the instructors, or have the supervising of the instruction of the hygiene of the sex in the public school. The medical inspector should instruct the boys and the nurse the girls."

CORNELL, Walter Stewart. Health and medical inspection of school children . . . Philadelphia, F. A. Davis co., publishers, 1912. illus. figs. tables. 8°.

CONTENTS. I. Medical inspection. II. Hygiene. III. Defects and diseases (the eye; the nose and throat; the ear; the teeth; the nervous system; mental deficiency; the skeleton; nutrition; the skin; speech; infectious diseases; prevalence of defects and diseases).

"The aim is to present a practical exposition of the work of medical inspection, born of the examination of some 35,000 children, and to give to physicians and teachers a survey of medical practice as it relates to children of school age. A review of the work of medical inspection in different localities is not attempted." (Preface)

DAVISON, Alvin. Medical inspection of schools. Pennsylvania school journal, 57: 471-75, May 1909.

Reprinted in Pennsylvania State educational association. Department of city and borough superintendents. Proceedings, 1909. p. 13-16.

Statistical résumé of work and defectives found.

"The benefits, then, to be derived from the medical inspection of school children are a saving of many thousands of dollars spent in instructing backward pupils, the prevention of much sickness and suffering, the warding off of a considerable amount of early death, and the remedying of numerous defects in childhood which are certain to limit the usefulness of the future citizen, and in a considerable number of instances make him an object of charity, and sometimes even a criminal.

"If medical inspection is to prevail it should be made as efficient as possible. With the results of the experience of others, the opinion must be upheld that both kinds of inspection should be undertaken,

the one for the detection of contagious diseases, the other for physical defects. The work relative to contagious diseases should either be related to or under the direction of the board of health, while the physical examination should be directed by the school authorities."

DIKON, Samuel C. The object to be obtained by the medical inspection of school children. Harrisburg, Pa. [1910] 9 p. 8°. (Pennsylvania health bulletin, no. 8, February 1910)

Résumé of medical inspection in various cities:

"The first day that medical inspection went into effect in New York, 140 children were found to be ill with dangerous contagious diseases, contagious skin diseases, or parasites.

"In Boston during the first four months, 5,825 pupils were found to be sick, of whom 1,085 needed to be sent immediately home. Of these, 286 were capable of spreading the disease from which they were suffering. . . . The New York report for the year 1906 presents the following: Number of [examinations of] children, 1 6,285,436; children excluded, 1 18,844."

"In the annual report for 1906 of the board of health of Philadelphia the number of pupils referred to inspectors by principals for examination, 74,534; the number of individual examinations was 141,308; the number excluded from school was 7,598; the number of pupils found to be requiring medical care, but not needing to be excluded from school, was 27,481.

"In the city of Chicago, during a period of four months, 233 schools were visited with the result that 1,417 cases of diphtheria and 306 cases of scarlet fever were discovered in actual attendance on school.

"In the city of New York trachoma was known to prevail. The report showed that 17 per cent of all the school children were suffering from this affection and it was found necessary to open a special hospital for the treatment of this disease alone in the year 1903."

The number of cases treated by operation was 4,337; treated without operation, 11,599.

"In 1900 the deaths from [diphtheria] in the United States were 16,475, the great majority of whom were school children. In Chicago, medical inspection was instituted in 1900. During the year preceding 3,981 cases of that disease had occurred, of which 843 were fatal. During 1900 the number of cases fell to 3,303, a decrease of 628, and the number of deaths was reduced to 797.

"One most important result of inspection is the discovery of unreported cases of contagious disease at the homes. In Chicago 744 cases of diphtheria discovered in schools brought to light 2,619 cases at home, while 231 cases of scarlet fever discovered by the school inspectors disclosed 745 cases at home.

"In Terre Haute, Ind., out of 491 children examined 125 were found defective in hearing, and yet only 3 had been so recognized by their teachers.

"In the year 1906, out of 9,258 deaths from pulmonary tuberculosis in this State [Pennsylvania], 1,456 were of persons under 20. Of children over five and under nine, 39 died of that disease, of those between nine and fourteen, 166, and of those between fourteen and nineteen, 784.

"The investigations of our county medical inspectors and health officers [in Pennsylvania] soon developed the fact that throughout our rural districts the excellent laws which the legislators had provided for the construction and management of schools in the interest of the protection of the health of our school children" were not observed, and in 1908 the department inaugurated a system of sanitary inspection of school buildings through its health officers.

"On careful deliberation it has been decided therefore to place the supervision of the whole system of school inspection in the hands of the county medical inspectors, including both sanitary inspection of buildings and grounds, and medical examination of the children . . . and only physicians are to be entrusted with it.

"The reports of inspection are made on score cards. One of these is marked 'Sanitary inspection,' the other 'Physical record.' On the first is recorded the sanitary condition of the schoolrooms, grounds and outbuildings including provisions for light, heat, ventilation, water supply, and sanitary conveniences. On the second the age and sex of the pupil, the condition of sight, hearing, respiration, skin, teeth, cervical glands, contagious diseases, pulmonary tuberculosis, and deformities."

DOWLING, Oscar. Value of medical inspection for schools and school children. In Southern commercial congress. Proceedings, Third annual convention, 1911. p. 334-50.

A general résumé of statistical information from various medical inspection reports of leading American cities.

DRESSLAR, Fletcher Bascom. The duty of the State in the medical inspection of schools; results which the public may rightfully expect. In National education association. Journal of proceedings and addresses, 1912. Published by the association, 1912; and in U. S. Bureau of education. Current educational topics no. 3. p. 5-13. (Bulletin no. 24, 1912)

* See New York City. City superintendent of schools. Seventh annual report . . . year ending July 31, 1906. p. 802. (Report of Dr. Thomas Darlington, commissioner of health)

Recent books on medical inspection of school children: p. 12.

Medical inspection must include the following points:

"1. It ought to serve as an efficient means of preventing the spread of contagious diseases. This will necessitate a careful examination of all children, especially at the beginning of the school terms, in order both to exclude children who are suffering from contagious or parasitic diseases and those 'carriers' who are a menace to others, even though they themselves show no decided effects of the diseases they are capable of disseminating.

"2. Medical inspection ought to emphasize in a decided way the especial significance of hygienic conditions in schools; it is far more important to furnish conditions which promote the health and development of well children than it is to make special efforts to care for those who are sick or defective, especially where these defects have been largely induced through neglect.

"3. Health officers must know more about education, more about the hygiene of teaching, more about the normal demands of child life; they must possess more ability to work with teachers and the people for the general welfare of the community. A large majority of physicians, those who would not hesitate to undertake the work of supervising the health interests centered in our public schools, are wholly unfit for the place because they know next to nothing of the ideals and methods of modern education, and they are ignorant of their own ignorance. The best results can not obtain under such conditions.

"4. We need doctors of health, who will be more delighted in exhibiting a large list of healthy, well-developed children than a long list of those who are physically defective and diseased; they must be able to see defects and diagnose correctly, but their chief emphasis should be in preventive measures."

FERRELL, John A. The medical inspection of schools and school children. North Carolina. State board of health. Bulletin, 27: 91-110, June 1912. illus. tables. map.

Reprinted as Public school health bulletin no. 4. Raleigh. Issued from office of superintendent of public instruction of North Carolina, 1912.

In the following résumé of medical inspection and its needs, Dr. Ferrell dwells chiefly upon the need for sanitation and the wide prevalence of hookworm disease in North Carolina. "We know," he writes, "that the disease prevails in 99 of the 100 counties of the State. In determining its frequency by counties we microscopically examine not less than 200 rural school children—ages 6 and 18, inclusive—taken at random in each county. The surveys are complete in 29 counties and partially complete in other counties to a degree sufficient to justify the map.

"Can we neglect to have the simple examination made and the treatment administered; knowing that by it more than one-fourth of all our girls and boys are being stunted in their bodies, dulled in their minds, robbed of their vitality, rendered backward in their work, and started on a road which will lead them to death, invalidism, or perhaps to prisons?"

GIVENS, Amos J. The prevention of nervous and mental diseases through medical inspection of schools. North American journal of homoeopathy, 26: 291-301, May 1911.

Reprinted. Stamford, Conn., 1911.

The need is for immediate action, in order that medical supervision shall go "as far beyond the detection of physical defects as that detection is an advance beyond the mere search for contagious and infectious diseases. An extension which shall secure for children from all classes of society the beneficent determination of temperamental and constitutional conditions, of mental capacity, of the soundness or unsoundness of the nervous system—an estimation and valuation by the medical inspector not only as a pathologist, but also as a psychologist."

GULICK, Luther Halsey. The importance of medical inspection of schools. School progress (Trenton) 1: 20-23, December 1909.

Each school district should have an inspector. The cleanliness, ventilation, water supply, closet, the accumulation of dust, the examination of children's eyes, throats, noses, ears, and skin, their general physical make-up, should be gone into. The inspector should have authority to exclude from school, and to take such steps as he judges necessary to prevent spread of communicable diseases.

"Growth is more necessary than education. There is not a school board in America that systematically weighs and measures its children to ascertain whether or not they are growing normally, and if not to readjust the mental task to meet these physiological conditions; the courses of study are constructed without the guidance of any data based on any careful investigation of these vital matters. We must develop within our boards of education power to see that the fundamental principle of human life—health—is properly guarded. Until these things are done it will be impossible to contribute anything of permanent value to physical development."

GULICK, Luther Halsey and AYRES, Leonard Porter. Medical inspection of schools. [4th ed., rev.] New York, Survey associates, inc., 1913. 224 p. illus. 8°. (Russell Sage foundation)

Bibliography: p. 203-206.

Text of earlier book has been entirely rewritten, and material and forms brought down to date.

GULICK, Luther Halsey and AYRES, Leonard Porter. Medical inspection of schools. [4th ed., rev. and reprinted, January 1913] New York, Survey associates etc., 1913. 224 p. illus. tables. charts. map. 8°.

Bibliography: p. 203-206.

Per capita costs and salaries, p. 101-13 (places by name). Legal provisions, p. 165-80.

Inspection by physicians for contagious diseases costs about 10 cents per child per year; for contagious diseases and examinations for detection of physical defects average about 25 cents per child per year; where school nurses are employed, the average cost is about 30 cents per child per year. In cities having relatively efficient systems, the number of defective pupils receiving remedial treatment as a result of the examinations is from about 10 to 50 per cent.

At the beginning of year 1911, there were 415 school nurses employed in 102 municipalities. In 1912, Minnesota, Massachusetts, Pennsylvania, Rhode Island, New Jersey, West Virginia, Louisiana, Colorado, Utah, and the District of Columbia had mandatory medical inspection laws; California, Washington, North Dakota, Indiana, Ohio, Virginia, New York, Connecticut, Vermont, and Maine had permissive laws, and the remaining States had no laws. Dental inspection is carried on in nearly 200 cities.

HARTMAN, Lawton M. The problem of the public school from the medical point of view: The studies and their effects on the nervous system. Pennsylvania medical journal, 13: 581-88, May 1910. tables.

The author gives a general résumé of various writers' work and findings, substantially as follows:

1. That the subject of nervous diseases among the school children has, up to this time, not received sufficient attention by the inspectors of any prevailing systems of medical inspection of the public schools; that this subject is being recognised as of the utmost importance from the standpoint of the physical and mental development of the country's youth.

2. That there is now no definite knowledge of the part played by any particular study or group of studies or any school occupation in the development of nervous affections among the school children.

3. That there is a large and varied group of nervous manifestations, shown as definite and distinct alterations from the normal mental and physical state, occurring among school children.

4. That before the age of puberty overwork at school is of much less importance as a factor in the causation of nervous disorders.

5. That after the age of puberty, especially among girls, overwork at school plays a much more definite part in producing affections of the nervous system.

6. That the importance of medical inspection of the schools is becoming universally recognized.

7. That proper and broader legislation should be urged for the legal support of more general, more accurate and more powerful medical inspection of schools.

8. That more general establishment of child-study departments should be strongly encouraged and urged.

9. That there should be greater cooperation between educators and physicians for maintaining a better standard of health among the school children.

10. That the individual management of those pupils who may be affected with some nervous disorders is the only rational way of providing for the proper and continued education and supervision of the health of the school youth.

HERBST, H. Herbert. Medical oversight of public schools. Pennsylvania medical journal, 13: 592-602, May 1910.

Bibliography: p. 602.

General résumé of reports made.

HILL, David Spence. First measures needed for child welfare upon the part of municipal and educational authorities in the South. Southern medical journal, n. s., 3: 99-104, January 1911.

1. The compulsory medical inspection of all school children and schoolhouses.

2. Bureaus of research.

"These two fundamental measures would not produce an immediate cure-all for the sins against the children. But adopted, they might mean the application of the scientific method to the root of some of our troubles; the health, efficiency, and happiness of millions of children in the South."

HINES, Linnaeus Neal. A study in retardation. In American school hygiene association. Proceedings, 1912. Springfield [Mass.] American physical education review, 1912. p. 53-56.

Also in Journal of education, 75: 460-61, April 26, 1912.

An investigation of retardation in the Crawfordsville, Ind., schools, conducted with 1,229 grade pupils as the subjects; of these 608 boys and 624 girls, 114 boys and 93 girls came under the retarded classification.

Retardation causes.

	Boys.	Girls.
Physical causes, general bad health, anemia, etc.	21	21
Lacking mental ability to do the minimum amount of work required.	57	42
Home and outside environment.	34	32

Of the 1,229 children, "887 belonged to the good health class and 342 to the poor health class. In the same body of pupils, only 207 are retarded, and of the retarded pupils, only 63 belong to the poor health class. The poor health pupils constitute 27.8 per cent of the entire number, 1,229 or 27.2 per cent of the nonretarded pupils come in the poor health class and . . . only 30.4 per cent of the retarded pupils are in the poor health classification. Of the nonretarded pupils, 279 are in poor health or need medical attention. The term 'poor health' [includes] poor eyesight, defective hearing, or other similar troubles.

"It may be safely stated that from 70 to 80 per cent of school children have some defect.

"What, then, can be done about the matter. Employ school doctors and school nurses, improve the home conditions where possible, better the conditions in the schoolroom and on the playground. . . . If every pupil did his work in the open air all the time, if the school gave him a bath whenever he needed it, if the school kept him properly fed, if the school through the doctor and the nurse sought to remedy his defects, conditions would be changed for the better. . . . The demand is insistent that the school shall take up this burden for society. The school will answer the call by assuming a responsibility for the physical welfare of the child as well as for his mental and moral welfare."

HOAG, Ernest Bryant. The teacher's relation to health supervision in schools. American academy of medicine. Bulletin, 13: 127-34, June 1912.

Reprinted in American academy of medicine. Conservation of school children.

"(1) Every teacher before certification should be obliged to give evidence of practical elementary knowledge of the functions of the body.

"(2) Every such teacher should be obliged to give evidence of practical knowledge of those ordinary physical defects of children in the schools, which interfere with school progress.

"(3) Every normal school and teachers' college should provide adequate instruction in the lines indicated above. Very few of them now do so, although when questioned most of them answer in the affirmative, regarding certain traditional courses in biology and physiology as covering the requirement, a supposition which the facts prove almost entirely unwarranted.

"(4) Teachers who are without experience in child hygiene but who are already certificated, should be instructed by properly qualified specialists in this subject.

"(5) Physical educators must receive this special training in addition to that which they ordinarily acquire in their courses and with it their efforts will prove particularly valuable in this new sort of health supervision."

The writer gives an outline for the health grading of the school child, to be made by the teacher at the beginning of the term. It embodies the following general heads: (a) General appearance; (b) mental conditions; (c) nervous conditions; (d) teeth; (e) nose and throat; (f) ears; (g) eyes; (h) communicable diseases of the skin; (i) eruptive diseases.

"When the outline is properly filled out," says Mr. Hoag, "the teachers will be surprised with the information it develops on points often unsuspected. As a preliminary test before the arrival of the school medical officer or nurse, it will furnish invaluable aid."

HOFFMAN, Frederick L. Medical and physical examination of school children. American statistical association. Quarterly publications, 12 : 558-65, June 1911. tables.

"It would pay the community to reduce absence and retardation to a minimum by intelligent medical and physical inspection of school children and to employ methods of sanitary control. . . . We require to know the amount of floor space per pupil as well as the amount of cubic space. . . . We require more accurate and conclusive statistics on the question as to whether there is a direct relationship between school attendance and epidemic outbreaks of acute infectious diseases. . . . We require to know more definitely the actual temperature and air conditions in schoolrooms during the winter months. . . . We need better mortality statistics of children at school, thoroughly analyzed according to causes and circumstances to determine the extent to which deaths from diphtheria, scarlet fever, and whooping cough are directly traceable to school infection."

Iowa State teachers' association. Educational council. Report of the committee on medical inspection of schools. *In its Proceedings*, 1909. Des Moines, Iowa, Emory H. English, State printer, 1910. p. 59-76. tables.

Chairman, H. E. Blackmar.

Salaries of medical inspectors, etc.: p. 68-69. Bibliography: p. 74-75. Reprinted.

A résumé of medical inspection. In vogue in some form in France since 1833. In 1874 at Brussels in Belgium, medical inspection in its full modern sense of the term was successfully inaugurated. In Germany a beginning was made at Dresden in 1867, but not until 1899 was a system of true medical inspection established. In 1887 Hungary enacted a law providing for school physicians. Moscow has had school physicians since 1888. Japan has had medical inspection since 1896. The English law became effective January 1, 1908.

In the United States 9 States have passed laws relative to medical inspection. In 1899 Connecticut passed a law for the testing of the eyesight in all public schools. The New Jersey statute became a law in 1903. Vermont followed in 1904. The Massachusetts law was enacted in 1906. The New Jersey law was revised and became mandatory in 1909. Since September, 1908, medical inspection laws have been passed in Colorado, Washington, California, Maine, and Michigan, and are pending in Ohio and Indiana. Controlling authority in cities outside of Massachusetts (1908), p. 60-62. Established since November 1908, in additional cities, p. 66. Salaries of inspectors, p. 68; "cost varies with the extent and kind of work done."

Forms: p. 71-73. References: p. 74-75.

"Until statutory provision is made for medical inspection we urge upon the superintendents and school boards the wisdom of taking initiatory steps. . . . (1) By issuing each semester or oftener reports on the health and habits of the children. (2) By printing on this report card, or distributing in some other manner, simple rules of health for school children. (3) By printing and distributing leaflets relative to the care of the teeth."

MAXWELL, William Henry. The necessity for Departments of health within Boards of education. *In American school hygiene association*, meeting with the Department of school superintendents, National education association of the United States, 1909. Proceedings of the First, second and third congresses. Published November, 1910, by the American school hygiene association. Springfield [Mass.] American physical education review, 1910. p. 207-12.

Also in National education association of the United States. Department of superintendence. Proceedings, 1909. Published by the association, 1909. p. 98-103; in National education association of the United States. Journal of proceedings and addresses, 1909. p. 252-257; and in American physical education review, 14:301-307, May 1909.

"So far . . . as medical inspection deals with physical defects and with building up the constitution of children through their school work, it will be most efficiently conducted under the supervision of the school authorities. . . .

"Some of the problems, which the physician equipped with the resources of modern science may help us to solve, are the following: (a) *Problems of posture*; (b) *problems of vision*; (c) *problems of nose and throat*; (d) *problems of nutrition and growth*.

"The problem of instructing parents in the feeding of children . . . can be accomplished only through a well-organized corps of medical experts and nurses.

"A department of hygiene is necessary because teachers stand in constant need of the skilled physician's advice in the treatment and training of children. . . . The crowning reason for placing this work under the supervision of the board of education is that the work of mind-training is so interwoven with the work of physical training that the work of the teacher and the work of the physician cannot be dissociated without loss to both."

See also opinion of the New York City Superintendent of schools. A department of school hygiene. *In his Annual report*, year ending July 31, 1907. p. 133-43.

"Dual responsibility in the school—that of the board of education and that of the department of health—always has resulted and always will result in confusion and inefficiency in the work affected. It is owing to this dual responsibility that the large annual appropriation made by the city for the physical examination of school children is to a great degree wasted. Efficient service will be obtained only when the board of education is made solely responsible for all the work that goes on in the schools. . . . The school nurses would do much more and better work if they were made responsible to the educational authorities."

New England association of school superintendents. A report on the Physical welfare of the public school child. . . . May 1909. Hartford, Connecticut, Printed by R. S. Peck & co. 43 p. tables.

A résumé, with tables, of various medical inspection reports, showing association of physical defects with retardation; i. e., South Manchester, Conn.; Medford, Mass.; Camden, N. J.; New York, N. Y.;

New Haven, Conn.; and other cities; with special showings, also, of eye, nose, ear, throat, and teeth conditions in reports.

"The means taken to protect the health of the school children in the New Haven schools are:

"1. Children having contagious diseases, others in the same family, and those living in the same house must remain out of school until given permission by the health officer to return.

"2. All books and school material used by a child after the beginning of a contagious disease are promptly burned.

"3. Schoolrooms in which there have been cases of contagious diseases are closed and thoroughly fumigated. . . .

"4. School physicians, local practicing physicians, are at their offices ready to respond to school calls every morning, if summoned by the school principal, to decide such cases as the principal does not feel competent to pass judgment upon. If the physician finds it necessary, he immediately dismisses the child temporarily from school. Bi-weekly visits are also made by the school physicians to every school building for purposes of general inspection and consultation.

"5. A school nurse spends all her time in school assisting the physician, treating simple cases, and visiting the home to give parents necessary information about treatment to be continued there.

"6. The newer school buildings and many old ones are provided with the best systems of practical ventilation. . . .

"7. Drinking fountains are being installed in increasing numbers in our schools and drinking cups are being abandoned.

"8. Paper towels are replacing the cloth towel."

NEWTON, Richard Cole. Medical and sanitary inspection of schools. Medical record, 75: 480-82, March 20, 1909.

Résumé of the history of medical inspection, and of some inspections made in Brookline, Mass., and in Chicopee, Mass., where one child out of 500 examined had perfect teeth—but had also spinal disease. Not one child out of the 500 was without defects.

"Perhaps the greatest need in the educational world at present is for medical men, sanitarians, and architects on the boards of education. . . . The plan now in vogue in Boston of hiring the best available architect, engineer, etc., in the city to supervise and construct all the school buildings, should be adopted in every city and should be extended to the employment of at least one thoroughly competent chief medical and sanitary inspector. This man should be responsible to the board of education . . . and should have complete control of the sanitation and hygiene of the school buildings and of all the scholars. In the matter of ventilation, heating, drainage, playground space, control of athletic sports, hiring and discharge of physical and gymnasium directors and teachers, he should be subordinate only to the superintendent of schools and the board of education. . . .

"Every town having 2,000 or more school children should employ medical officer of instruction, at a yearly salary of not less than \$3,500, who should give his entire time to the schools during the school year, and should supervise the playgrounds, and the out-of-door physical instruction during the summer. He should be allowed to employ as many nurses as might be needed at a compensation of \$75 a month, and as many physical instructors, both male and female, as might be required. He should have charge of all the records and statistics bearing upon the physical condition of the children and of the sanitation of the buildings."

Part of a report presented to the New Jersey State sanitary association, December 5, 1908.

QUIK, F. H. Die prophylaxe der taubheit bei schulkindern. In III^e Congrès international d'hygiène scolaire, 1910. Rapports. Paris, A. Maloine, éditeur, 1910. v. 1. p. 679-83.

Literaturverzeichnis: p. 663.

Also in Internationales archiv für schulhygiene, 6: 422-28, July 1910.

Literaturverzeichnis: p. 427-28.

In no country have statistics been established by school physicians, showing the percentage of deafness among school children, presentable by judicious prophylaxis.

Ear specialist should test the school child's hearing at beginning of his school life, and to its close make annual examinations, to take place on school premises. Teachers should not be allowed to make these examinations.

In the study of the prophylaxis of deafness, the diseases to be examined are: (a) Adenoids; (b) infectious diseases, measles, diphtheria, influenza, scarlet fever, meningitis, typhoid fever, mumps; (c) catarrh and tuberculosis of the superior air passages; (d) ear conditions.

RAPPEE, Louis W. Medical supervision of schools. American education, 15: 352-57, April 1912.

Contains a tentative standard classification of school ailments, with the following divisions: (1) Physical defects; (2) noncontagious ailments; (3) parasitic ailments (transmissible); (4) infectious diseases. Also Symptoms of children's ailments, as follows: For teacher, nurse, and parent—(1) Teeth defects; (2) nose, throat, and ear disorders; (3) eye ailments and defects; (4) nervous ailments; (5) digestive system disorders; (6) deformities and bad posture; (7) infectious and parasitic ailments.

BAPPEE, Louis W. Tentative standard plan for medical supervision of schools. Some summary suggestions. School and home education, 31: 367-72, May 1912.

Also with verbal difference in Journal of education, 75: 583-84, May 23, 1912.

"1. Medical supervision and all other provisions for public health through the public schools should be administered by the boards of education.

"2. All school health provisions should be correlated in a department of hygiene with the following divisions: Medical supervision, school sanitation, physical education, health teaching, and the hygiene of instruction.

"3. The supervisor of hygiene should be a physical educator with special medical knowledge of school children. . . . His whole time should be devoted to the work of the schools and his salary should be about \$3,000 a year, for 12 months. . . .

"4. Most of the work of inspection, examination and follow-up of school children should be done by specially trained and selected school nurses working 12 months in the year and not by part-time physicians working a few hours or minutes each week.

"5. Where a supervisor for full time can not be employed a supervising nurse or part-time physician should direct and train the nurses for the school work, with the help of the superintendent of schools.

"6. In cities under 15,000 population medical supervision should begin with the employment of nurses and a physician for consultation or examination only. . . .

"7. The salary of \$2,500 or \$3,000 for the hygiene supervisor will mean in many cities very little extra outlay of money; the elementary supervisor of physical training may in certain cases be dispensed with; few or no physicians need be employed except on the nurse's basis; and the work of the school nurses can be made very much more efficient. The need is for men and women specially trained for school health work. . . .

"11. The schools may well start with a nurse for each 1,500 elementary school pupils. . . . They should be employed 12 months in the year with a few weeks vacation, and receive a beginning salary somewhere between \$70 and \$100 a month. . . .

"12. The year's work should begin with a preliminary room-inspection of all pupils from the lowest grades up; the nurse standing with her back toward a good light and having the pupils file slowly past her while she calls out by the code numbers ailments and defects observed—the teacher at her desk writing down the nurse's findings on each pupil's historical health-record card, and properly checking those to be referred to parents, excluded, given corrective exercises, and the like. . . . Forty or fifty children can be room inspected in an hour in average rooms.

"13. The nurse should call at each of her schools each morning for the individual inspection of suspicious cases referred to her by the teachers . . . and at the last school she should spend the remainder of her morning in making physical examinations, or helping the physician examiner, if any.

"14. About 10 children can be examined in an hour. . . .

"15. In the two lower drawers of the filing case the health record cards for the school may be arranged by sexes, left and right, and by rooms, alphabetically for each room, and the lowest grades in front. . . .

"16. A simple standard set of blank forms should be used. Most blanks now used . . . are woefully inefficient. . . . The New York bureau of municipal research and the Sage foundation are exceedingly helpful. . . .

"17. A simple school classification and nomenclature of children's disorders should be adopted. Both the popular and the scientific names should be used. . . .

"19. The school nurse with practice can inspect for contagious diseases. . . .

"20. The final test of medical supervision and educational hygiene is prevention and cure. . . .

"21. Daily reports throughout the year should be made by the nurse and physician while employed. These reports of cases found, referred, excluded, cured or improved should be summarized weekly and printed in the newspapers."

BAYCROFT, Joseph E. Function and administration of medical supervision in the school. Hygiene and physical education, 1: 38-42, 257-59, April, May 1909.

"The plan for medical supervision should provide for: (1) Careful consideration of all phases of the school environment. . . . (2) Regular physical examinations. . . . (3) Physical training. . . . (4) Medical inspection which should be regular and systematic."

RUSSELL SAGE foundation. Department of child hygiene. What American cities are doing for the health of school children; Report covering conditions in 1,038 cities. New York City, Russell Sage foundation, Dept. of child hygiene [1911] 43 p. tables. diagr. 8°. (Health, education, recreation, no. 101)

Pt. I. Medical inspection. Pt. II. Hygiene of the schoolroom.

¹ See *His* Medical supervision of schools. American education, 15: 362-67, April 1912 (preceding reference).

Summary of provisions for health of children in public schools, 1911.

States.	Number of cities reporting.	Having medical inspection.	Inspection for contagious diseases.	Vision and bearing tests by teachers.	Vision and bearing tests by doctors.	Physical examination by doctors.	System under board of health.	System under board of education.	Number of school doctors.	Number of school nurses.	Inspection by dentists
United States.....	1,038	443	405	552	258	214	106	337	1,415	415	60
North Atlantic Division.....	411	236	224	261	125	135	58	178	852	261	24
South Atlantic Division.....	74	23	23	20	12	10	7	16	48	11	8
South Central Division.....	101	35	34	43	23	12	12	23	41	5	3
North Central Division.....	382	109	93	182	73	38	21	88	417	114	30
Western Division.....	70	40	31	37	25	19	8	32	57	24	4
North Atlantic Division:											
Maine.....	19	8	6	18	4	4	.....	8	13	.....	2
New Hampshire.....	12	3	2	7	3	2	1	2	11	1	1
Vermont.....	7	.....	1	7	.....	.....	.....	.....	.....	.....	.....
Massachusetts.....	108	107	103	104	2	57	23	84	348	49	9
Rhode Island.....	16	8	7	5	6	22	3	5	20	1	1
Connecticut.....	25	15	15	21	7	5	11	4	26	7	1
New York.....	77	20	22	51	17	13	12	8	197	160	4
New Jersey.....	47	47	47	12	45	40	.....	47	117	30	2
Pennsylvania.....	100	28	21	36	21	12	8	20	120	13	4
South Atlantic Division:											
Delaware.....	1	1	1	1	1	.....	1	.....	18	.....	1
Maryland.....	5	1	1	.....	2	1	1	.....	5	5	.....
Virginia.....	13	4	4	8	1	2	1	3	12	1	1
West Virginia.....	10	2	3	2	.....	1	.....	2	1	1	.....
North Carolina.....	15	5	4	12	1	1	.....	5	3	.....	4
South Carolina.....	11	4	4	1	2	4	1	3	5	.....	1
Georgia.....	13	5	5	2	3	1	2	3	4	4	.....
Florida.....	6	1	1	3	1	.....	1	.....	.....	.....	1
South Central Division:											
Kentucky.....	19	7	6	7	5	1	2	5	9	2	2
Tennessee.....	6	4	3	4	3	2	2	2	2	.....	1
Alabama.....	9	3	3	3	3	3	.....	3	3	2	.....
Mississippi.....	6	.....	.....	2	.....	.....	.....	.....	.....	.....	.....
Louisiana.....	8	3	3	4	2	1	1	2	6	.....	.....
Texas.....	31	10	11	14	5	2	3	7	8	.....	.....
Arkansas.....	9	3	3	3	1	.....	2	1	4	1	.....
Oklahoma.....	13	5	5	6	4	3	2	3	9	.....	.....
North Central Division:											
Ohio.....	68	12	9	28	9	5	1	11	67	24	8
Indiana.....	51	12	10	31	7	4	4	8	41	.....	4
Illinois.....	53	14	12	22	9	5	4	10	113	45	3
Michigan.....	42	19	16	24	12	5	3	16	78	14	5
Wisconsin.....	41	14	10	27	9	6	3	11	37	6	3
Minnesota.....	24	9	8	10	8	5	2	7	23	13	1
Iowa.....	29	6	8	15	4	1	.....	6	3	6	.....
Missouri.....	24	10	8	7	7	4	1	9	50	5	3
North Dakota.....	6	1	1	3	1	.....	.....	1	.....	.....	.....
South Dakota.....	6	2	2	3	1	.....	1	1	.....	.....	2
Nebraska.....	12	4	4	4	4	3	.....	4	3	1	.....
Kansas.....	26	6	5	8	2	1	2	4	2	.....	1
Western Division:											
Montana.....	6	.....	.....	2	.....	.....	.....	.....	.....	.....	1
Wyoming.....	3	1	.....	1	1	.....	1	.....	.....	.....	.....
Colorado.....	12	9	4	11	3	3	.....	9	1	1	.....
New Mexico.....	3	2	2	1	1	.....	1	1	3	.....	.....
Arizona.....	4	2	2	3	.....	.....	1	1	1	.....	.....
Utah.....	4	3	3	3	2	2	.....	3	3	.....	.....
Nevada.....	1	1	1	1	1	.....	.....	1	1	.....	.....
Idaho.....	3	.....	.....	3	.....	.....	.....	.....	.....	.....	.....
Washington.....	10	7	6	3	5	3	1	6	22	8	1
Oregon.....	5	2	2	2	1	1	2	.....	5	1	1
California.....	19	13	11	7	11	10	2	11	21	14	1

SHAFFER, George H. Health inspection of schools in the United States. Pedagogical seminary, 16: 273-314, September 1911. tables.

Bibliography: p. 301-302.

Appendix. School medical inspection in New York City, p. 303-14.

"In general it may be said, that in the older and larger cities of the East and Middle West the board of health controls, whereas in the smaller cities of the East and the newer cities of the South and West the board of education controls. . . .

"It seems to be the general opinion that all matters pertaining to infectious and contagious diseases should remain under the control of the board of health, but with respect to the more complete health

supervision of school children there is a difference of opinion. . . . The present tendency seems to be in the direction of a division of the work, leaving to boards of health the control of all matters pertaining to infectious and contagious diseases, and assigning the boards of education those health problems which more vitally concern the educator."

Representative results: Percentages of number examined.

	Year.	Defective teeth.	Defective vision.	Hyper-trophied tonsils.	Adenoids	Defective hearing.
Pasadena, Cal.	1909	30.0	17	6.0	5.0	3.0
Lowell, Mass.	1909	.....	10	7.0	3.0	3.0
Newark, N. J.	1909	8.5	13	4.0	5.0	1.4
Harrisburg, Pa.	1909	8.0	30	36.0	19.0	7.0
New York City.	1909	54.0	17	22.0	19.0	.....
Cleveland, Ohio.	1910	27.0	27	15.4	8.0	2.5
School of observation, University of Pennsylvania.	1909	38.5	28	5.1	13.5	5.1

SOBEL, Jacob. The home as a factor in the medical inspection of school children. New York medical journal, 91: 1157-65, June 4, 1910. illus. tables.

Describes the conditions among the poor of New York City.

"The medical inspection at the school is but a mere beginning; . . . the solution of accomplishment lies in the home. . . . There is hardly a single defect . . . found by us in school work, which is not materially influenced by home conditions of the tenement. . . . During the year of 1909, 231,081 children were examined physically, and of these 173,311 were tested for vision, the remainder being in lower grades where vision tests were unreliable and impracticable. Of these 173,311, 17.6 per cent were found defective, 30,408. From my personal observation and examination of several thousand cases I should place the percentage of defective vision as about 30."

Adenoids, malnutrition teeth, etc. Dr. Sobel, in his statements regarding housing conditions and children's growth and welfare, presents Glasgow, Scotland, tables. *For which subject, if further reading is desired, see:*

Crowley, Ralph H. The physical conditions of school children. School government chronicle, 77: 78-81, January 12, 1907. supplement. tables.

London county council. Report of the Medical inspector, year ended March 31, 1905. School government chronicle, 75: 171-72, February 17, 1906.

Mackenzie, W. Leslie and Foster, A. Report . . . on a collection of statistics as to the physical condition of children attending the public schools of the school board for Glasgow, with relative tables and diagrams. School government chronicle, 78: 145-46, August 17, 1907.

Returns were made for 36,883 boys and 35,974 girls. The mentally defective have been omitted.

"The grouping followed is confirmed by the distribution of one, two, and three-roomed houses. . . .

"These figures show that the one-roomed child, whether boy or girl, is always on the average distinctly smaller and lighter than the two-roomed; and the two-roomed than the three-roomed; and the three-roomed than the four-roomed. The numbers examined are so large and the results are so uniform. . . . It cannot be an accident that boys from two-roomed houses should be 11.7 lb. lighter on an average than boys from four-roomed houses and 4.7 inches smaller. Neither is it an accident that girls from one-roomed houses are, on the average, 14 lb. lighter and 5.3 inches shorter than the girls from four-roomed houses.

"This is the most extensive investigation ever undertaken in Britain as to the heights and weights of school children in primary and higher grade schools. The tables and diagrams . . . may legitimately be held to be a provisional standard for future investigations."

STEWART, James. Medical inspection of school children. In National conference of charities and correction. Proceedings, 1910. Fort Wayne, Ind., Press of the Archer printing co. p. 194-200.

"I. As it affects the educational progress of the child. II. As it affects the home and the family. III. As it affects society in general. IV. As it affects the family physician in his practice. V. As to conduct of medical inspection—whether by boards of education or by boards of health."

STILES, Charles Wardell. [Hookworm disease among Southern factory and school children] In his Hookworm disease among cotton-mill operatives. Washington, Government printing office, 1912. p. 12; 16-20; 33; 36-37 (the "Typical cotton-mill child") 37-38. tables. statistics. (U. S. [Department of Commerce and Labor] Report on condition of woman and child wage-earners in the United States. vol. XVII)

The various mills and factories, schools, and other institutions inspected, in these States, numbered 177.

"It appears that about 1 in every 4 children under 16, about 1 in every 5 hands from 16 to 20 . . . came within the suspect class. During the year 1911 microscopic examination of 37,267 children of school age (6 to 18 years) has been made in 87 counties in all by the State boards of health of Alabama, Arkansas, Georgia, Louisiana, Mississippi, North Carolina, South Carolina, Tennessee, and Virginia. The percentage of infection by counties ranges from 2.5" to 90.2" (footnote, p. 18).

STILES, Charles Wardell. Some recent investigations into the prevalence of hookworm disease among children. In Child conference for research and welfare, 1910. Proceedings. New York City, G. E. Stechert & co. [c1910] 2: 211-15.

Observations made in 5 different States, on 2,271 white children.

First series. Of 70 boys and 91 girls, the microscopical examination revealed hookworm infection in 133; before the examinations were made, according to the judgment of local physicians, the apparent age of these children, 20 boys and 28 girls were estimated as underdeveloped from one to eight years each, as indicated by physical development. After the examinations were made, it was found that 40 of these 87 children were infected. Of these 40 infected, underdeveloped children (20 boys and 20 girls) the figures were as follows:

Under-development.	Boys.	Girls.
One year.....	9	6
Two years.....	10	13
Three years.....	6	1
Four years.....	3	.....
Eight years.....	1	.....

All these children live on farms. Of the total, 161 farm children, 94 are living on farms which have no toilet of any kind; the remaining 67, on farms having the ordinary disease-spreading surface toilet, open at the back. For about 200 different localities, in 6 States, the same conditions are found—records of about 4,645 farm houses show 55.2 per cent having no toilet of any kind.

Second series. Observations made in 4 States, covering 2,110 children in 15 schools and orphanages located in 12 cities, towns, and villages. Of these children, 822 were classed as suspects.

Supplementing the medical inspection come the open-air schools, the better preparation of food, and the playgrounds. "In addition to all the other points thus far mentioned at this conference, the question of the sanitary arrangements in the backyards to the homes in which our children live is a factor second to none that has been discussed, and in those sanitary arrangements we often find the explanation of much of the sickness and death among our rural, village, and suburban children, the explanation of the under-development of many a child, and the backwardness of many a pupil in our schools."

STOREY, Thomas A. Medical inspection in schools from the standpoint of the educator. Medical review of reviews, 18: 466-72, July 1912.

Reprinted.

Also in American academy of medicine. Bulletin, 13: 433-41, December 1912; and in American academy of medicine. Conservation of school children.

The value of medical inspection when under control of educational authority. "If it is to take a place in the school curriculum it should be under the same responsible control that covers the other members of that curriculum. . . . If medical inspection must follow up cases . . . the 'follow up' must be made through the regular school channels and in the regular way. If medical inspection must have an educational influence upon the hygienic habits of the school child, then its plan of instruction should be pedagogical and under the supervision of the school authorities. . . . It should be a part of the very organization of the school itself.

"From the point of view of the educator, medical inspection carried out in school by a department of the school has a far greater probability of success and efficiency than a system applied in the schools by a department outside the school and without responsibility to a control from the school."

STRAW, Zatae L. Medical inspection of schools. In New Hampshire medical society. Transactions, 1911. Penacook, N. H., W. B. Ranney, printer, 1911. p. 154-66.

A general résumé.

Qualifications demanded in the work of medical inspectors: "1. Skill in diagnosis. . . . 2. In no other field of practice is so much general pathological knowledge required. . . . 3. The medical inspector must have a broad and practical knowledge of hygiene.

"He must have special and technical knowledge with regard to heating and lighting and ventilation—the proper construction of methods of drainage, of disinfectants, of the powers of endurance in the child, length of time of safe confinement for it in the schoolroom."

TOWNSEND, John F. Medical inspection of schools and school children. South Carolina medical association. Journal, 7: 334-39, September 1911.

Also in Pediatrics, 23: 410-18, July 1911. *Title: Medical inspection of school children.*

"Medical inspection, to be effective, must embrace in its scope the following:

"First. The relation of the school child to its fellow children as to the communicable diseases, ring-worm, pediculosis and various forms of skin diseases.

"Second. The relation of the school child to the community in which it lives, as to the infectious diseases, measles, scarlet fever and diphtheria.

"Third. The relation of the *educating* of a child to its physical life as to the effect of the school life upon its health, illustrated by the physical wrecks from overstudy, cases of great mental development with physical deterioration, the effects of poor school hygiene on the child's physique.

"Fourth. The school child with reference to its ability to gain an education, or the influence of physical defects upon the educational side of the child's school life. . . . The discovery of these defects and their removal consequently is of supreme importance to the child.

"The results of medical inspection have been extremely satisfactory. First. In the promotion of efficiency in the schools. Second. In the protection of the community. Third. In the preservation of the lives of the children, and promotion of a healthy spirit among them."

United States. Bureau of labor. Retardation, repeating, and elimination. *In its Conditions under which children leave school to go to work.* Washington, Government printing office, 1910. p. 245-303. tables. (*Its Report on condition of woman and child wage-earners in the United States.* vol. VII)

Statistical study of six cities: Pawtucket and Woonsocket, R. I.; Columbus Ga.; Columbia, S. C.; Plymouth and Hazleton, Pa.

Number and per cent of boys and girls repeating for specified leading causes (in part, here given).

Cause.	Boys.		Girls.	
	Number.	Per cent.	Number.	Per cent.
Lack of ability, slowness, dulness, or immaturity.....	203	20.0	164	21.2
Poor health and physical defects.....	131	12.9	115	14.9

"Poor health and physical defects [account] for 13.7 per cent. This does not tell the whole story, for in many cases the irregular attendance was probably due to or accompanied by poor health, but it is a sufficiently impressive total as it is."

It is for such children a medical inspector is of vital value.

VAN DERSLICE, James Warren. Medical inspection of public schools. Detroit medical journal, 10: 136-44, April 15, 1910.

Conclusion:

"The medical inspection of public schools is of vast importance to the welfare of the race, and of great economic value if it be properly executed. The controlling body should be a body of physicians vested with the police powers of the State, and to be the final arbiters in all matters of hygiene and sanitation regarding the school child. The medical inspectors should be competent medical men having special training for this work. They should be medical inspection specialists. School nurses should . . . follow up the cases and aid in carrying out of the work. . . . All notices regarding the physical condition of the child should refer the child to the family physician."

Dr. Van Derslice considers the prominence given to free dispensaries in these notices, to be ill advised. But since the very poor can be reached in this way only, they should be first considered, and not the income of "family physicians."

VAN DERSLICE, James Warren. The status of the school child. *Pediatrics*, 21: 653-61, December 1909. tables.

Data gathered in 26 cities, from 904 schools.

A statistical study of the school child: Retardation, grades and overage, causes of deficiency, defects according to ages, defects by grades.

"It may be taken as an axiom that the nearer a child is to the normal age for grade, the greater the probability of the pupil's continuance. Thus . . . an overaged child in the fourth grade has 1 chance in 26 of continuing through the eighth grade, while a child of normal age has 1 chance in 3. . . . The number of pupils compelled to leave school because of general ill-health was but 1 in 200. While there

is a loss of 50 per cent between the eighth grade and the high school, the artificial separation of the two is largely accountable for the loss. . . .

"Physical examinations were made of these pupils

Cases examined	153,503
Poor nutrition	8,858
Enlarged glands	38,177
Nervous diseases	1,541
Cardiac diseases	1,846
Pulmonary diseases	1,235
Skin diseases	3,107
Orthopedic diseases	2,985
Defective vision	45,577
Defective hearing	3,320
Nasal breathing	11,991
Defective teeth	55,174
Defective palate	1,166
Hypertrophied tonsils	31,640
Adenoids	10,049
Defective mentality	2,061

"These examinations were made by the school medical inspectors and under the rules laid down by the various school boards . . . The incidence of the commoner infections—scarlet fever, diphtheria, measles—was noted in 6,764 cases. In these it was found that in 78 per cent of the cases occurring as initial cases in the family it affected the school child."

WELCH, J. H. The importance of medical inspection of schools and its present status. *Kentucky medical journal*, 9:749-52, October 1, 1911.

General statistical résumé.

"Experience of medical examiners thus far has shown that 7 out of every 10 children are in need of physical examination; 3 out of 10 show defective vision; 2 out of 10 are defective in breathing; and 7 out of 10 have defective teeth.

"What is the penalty for physical defects? Retardation, discouragement, dropping out of school, and annual waste estimated at \$12,000,000. If only 50 per cent of these evils could be eliminated by medical inspection, would it not pay? I believe that all school children, teachers, janitors, school buildings, grounds, in all school districts, public, parochial, private, rural and urban should be subjected to examination by experts at least once a year."

WHEELER, R. M. A plea for medical inspection of schools. *Journal of the Minnesota State medical association and The Northwestern lancet*, 29: 505-509, December 1, 1909.

"It is appalling to note the incompetency of most teachers to assist in this campaign for the betterment of school hygiene. . . .

"The plan of a system of medical inspection should . . . include the proper education of teachers along the lines of physiology and hygiene. A State commission of medical inspectors should . . . lay down certain simple rules of school hygiene, which should be mastered by every teacher and inculcated into the mind of every pupil. Such lessons might include instruction in bodily and mental cleanliness, personal habits, injurious exercises, proper time of eating and studying, effects of narcotics and alcohol, simple methods of preventing the spread of disease, etc."

Scheme of inspection as outlined to be made by physician, "appointed according to State laws," upon child's first enrollment at school and afterwards; upon the first opening days to be in attendance at school and make a report as to each child's condition, record to be kept at the school. The physician to make, or confirm, all vaccinations; to submit written report to the educational authorities "as to what he considered the existing evils of the schoolroom and building, and make suggestions as to how this part of school sanitation may be improved. Poor lighting, bad ventilation, defective plumbing, dangerous stairways, insufficient heating might all be considered matters which would come within his sphere of supervision."

WILE, Ira S. School lunches and medical inspection. *Medical review of reviews*, 18:593-98, September 1912. tables. .

Also in *Journal of home economics*, 4:345-52, October 1912.

"Twenty-five per cent of our public school children fail to attend school 75 per cent of the time. . . . Preventable disease is a large factor in this . . . and malnutrition plays no small part in preparing soil for such preventable diseases. . . . The total absence of the term 'malnutrition' in many statistical tables shows that this phase of the problem is entirely omitted in a consideration of medical inspection. . . .

"The relation between school lunches and medical inspection is patent. Medical inspection should be so thorough as to indicate not merely the names of various symptoms and conditions, but should suggest whether or not malnutrition could possibly be an underlying factor. Under such conditions school lunches could serve in a curative way to assist in the relief of the conditions reported by the medical inspectors. Frequently medical inspectors would also suggest those children not possessing marked

debts, but who are very close to the health poverty line, and for them school lunches could be instituted as part of the preventive measures . . . increasing mental acuity and building up the physical health of our school children."

WILE, Ira S. School lunches. Their relative physical advantages in elementary and secondary schools. *New York medical journal*, 96:422-25, August 31, 1912.

Reprinted.

Résumé of reports: New York, St. Louis, etc., showing the relation between nourished children and undernourished growth, mentality, dentition, and school progress.

"Medical inspection as related to the public school system makes note of many symptoms which are apparent among the children, but all too frequently fails to get down to the factors responsible for them."

WOOD, Thomas Denison. Health examination. *In* National society for the study of education. Ninth yearbook. Chicago, The University of Chicago press, 1910. Part 1:13-42. tables.

Bibliography: Health examinations, p. 105

The cities in the United States having the best organized systems are: Boston, Chicago, Cleveland, Los Angeles, Milwaukee, New York, and Philadelphia.

"The State cannot afford on economic grounds even, to educate a child who is handicapped by removable obstacles or whose personality or character is being distorted in any preventable manner."

WOOD, Thomas Denison. Health problems in education. *In* American school hygiene association. Proceedings, 1912. Springfield [Mass.] American physical educational review, 1912. p. 125-30.

Also read before the National council of education, National education association of the United States, meeting, 1912; and in U. S. Bureau of education. Current educational topics no. III. p. 13-19 (Bulletin no. 24, 1912)

"There are in the schools of the United States to-day approximately 20,000,000 pupils. Careful study of statistics and estimation of all conditions lead to the following personal conclusions:

"From (1½-2 per cent) 300,000 to 400,000 of these have organic heart disease.

"Probably (5 per cent) 1,000,000 at least have now, or have had, tuberculous disease of the lungs.

"About (5 per cent) 1,000,000 have spinal curvature, flat foot or some other moderate deformity serious enough to interfere to some degree with health.

"Over (5 per cent) 1,000,000 have defective hearing.

"About (25 per cent) 5,000,000 have defective vision.

"About (25 per cent) 5,000,000 are suffering from malnutrition, in many cases due in part at least to one or more of the other defects enumerated.

"Over (30 per cent) 6,000,000 have enlarged tonsils, adenoids or enlarged cervical glands which need attention.

"Over (50 per cent) 10,000,000 (in some schools as high as 98 per cent) have defective teeth which are potentially if not actually detrimental to health.

"Several millions of the children possess each, two or more of the handicapping defects.

"About (75 per cent) 15,000,000 of the school children in this country need attention to-day for physical defects, which are partially or completely remediable.

"Of essential importance in the health field are the following: (a) Maintenance of sanitary, healthful school environment with clean schoolhouses, abundant light, good air, etc. (b) Hygienic instruction and school management, with particular attention to influence of teacher upon nervous health of pupils. (c) Effective teaching of health and hygiene to all pupils in the schools. (d) Rational supervision and direction of play, games, athletics and all healthful and satisfying forms of physical education.

"Special features . . . which have direct bearing on health include the following: (a) Homes of the pupils. (b) Playgrounds and gymnasiums. (c) Dental clinics and other medical clinics for children. (d) Classes for defectives and cripples. (e) Open-air schools.

"Improvement in school hygiene involves prominently these factors:

"1. Recognition of extraordinary value of work of school nurses, and employment of nurses in the schools.

"2. More comprehensive and thorough training in school hygiene in all normal schools and other institutions for professional education of teachers.

"3. Better technical training for school physicians, school nurses, teachers of hygiene and physical education, and other special officers in this field.

"4. Requirements of tests of knowledge and skill in various phases of school hygiene for teachers in general, and certification of health specialists of different types."

INSPECTION FOR COMMUNICABLE DISEASES.

GENERAL REFERENCES.

DIXON, Samuel G. The medical and sanitary inspections of schools and their relation to the tuberculosis problem. *In American school hygiene association. Proceedings of the first, second and third congresses.* Published November, 1910. Springfield [Mass.] American physical education review, 1910. p. 35-42.

Read at the second congress, 1908.

"The decrease in mortality from tuberculosis has apparently been greatest in those States where systematic popular education for its restriction has been most active and general. There is no other known cause capable of producing such a gradually decreasing effect as is shown to have occurred. . . .

"Is there not reason to suppose the systematic education of our school children in the essential facts . . . would be followed by a still more noteworthy reduction in the next generation? Should it not be a part of the regular curriculum of every school in the country?"

FELL, A. S. The prevention of the spread of contagious diseases, particularly among children. *American journal of public hygiene*, 20: 82-91, February 1910.

"There should be a thorough system of medical inspection of all the school children in the city, State, public, private and parochial."

International municipal congress and exposition. First. Contagion and school inspection. Discussion. *In Municipal advance.* Extracts from papers read. Chicago, September 18-30, 1911. p. 117-19.

The conference as a whole voted in the affirmative on the following questions:

1. Should carriers be excluded from school? 2. Should vaccination be required for school children in cities, in small towns, in the country? 3. Should schools have physical examinations? 4. Should schools have dental examinations?

United States. Department of commerce and labor. Bureau of the census. [Mortality from children's diseases in Registration area, 1910: Ages 5 to 14] *In its Bulletin*, 109: 118.

	Ages 5 to 9.	Ages 10 to 14.	
Diphtheria and croup.....	2,938	700	3,638
Measles.....	598	182	740
Scarlet fever.....	1,731	442	2,173
Whooping cough.....	228	17	245
Total.....			6,796

WILE, Ira S. The social plagues and the public schools. *New York medical journal*, 92: 501-504, September 10, 1910: tables.

Reprinted.

Also in *American academy of medicine. Bulletin*, 11: 496-505, October 1910.

"The school throws no mantle of protection, educationally or physically, about children, when they most require it.

"In 1900, there were 446,133 teachers in the United States, of whom 118,519 were males and 327,614 were females. If . . . it is a 'conservative estimate that in this country the morbidity from gonorrhoea would represent 60 per cent of the adult male population and that of syphilis from 10 to 15 per cent,' are these teachers a possible source of infection of public school children? Are the janitors, scrubwomen, school attendants a source of possible infection of the children? . . .

"Venereal diseases among the colored children are said to be unusually common according to Southern physicians, and there are 872,344 negro children between the ages of 5 and 14 in the elementary schools. . . .

"The prevention of the social plagues is one of the intrinsic problems of our present school system."

Dr. Wile's statistics give some idea of the extent of the diseases among school children. He emphasizes existent evils and makes a plea for the fullest effectual work of the medical inspectors of school children, that the diseases when found be specifically called by name, and that preventive means be radically enforced. He says, further:

"Prophylaxis means increased attention to school hygiene. Drinking fountains must supplant the foul drinking cups. Individual towels are absolutely necessary. Pencils, sponges, books must be individualised; and the children must be impressively instructed not to lend them to each other and . . . to avoid putting such articles in their mouths. Toilet facilities should be improved. The toilets

of the two sexes must not be . . . within earshot of each other. . . . Complete physical examinations should be required. . . .

"Manifestly, children who are a source of contagion to others must be excluded from school . . . until they are no longer a menace to the health of their fellow school children.

"Boston, Philadelphia, Chicago exclude the children when the diseases are . . . recognized by the medical inspectors. . . .

"Medical inspection must progress so as to be of greater value. The classification of the defects of school children should . . . be placed upon an etiological basis."

WILLSON, Robert N. The economic relations of social diseases. Pennsylvania medical journal, 15: 843-55, August 1912.

Has the public "a right to demand instruction regarding the many more than 100,000 infected sufferers supposedly intermingling in the homes and lives in every city . . . ?

"The richest and the poorest strata of society [are] the two most thoroughly saturated with these poisons. . . .

"What do we hear of the blind asylums, 20 per cent of whose inmates are there because of gonococcus birth infection; . . . of the insane asylums with 85 per cent and upward of the cases of paresis due to syphilis; and over in the nervous wards a very like percentage of cases of locomotor ataxia due to the same disease? . . . What of the children's wards in hospitals, never free from little children who are infected; . . . of the general wards . . . full of the debilities . . . the marasmus, the idiocies, the apoplexies, the epilepsies, the club feet, the hare lips, the maimed and crippled special senses. . . .

"We are officially informed that in our army of about 60,000 men not less than 20 per cent of all upon the sick list are instances of venereal infection. . . . For the navy and marine corps . . . for all venereal diseases the primary admission ratio was 199.17 per 1,000."

"In the Public health and marine hospital service . . . about 1,300,000 [patients have been treated] in the last 20 years. Of these, 106,000 were cases of syphilis; . . . 4,420 constituting the average per year; . . . 117,336 cases of gonorrhea, with an annual average of 4,899 cases. . . .

"No reference has been made to the new wave of venereal infection brought to this country each year from the continent. . . . Last year 223,453 immigrants came from Italy alone, 123,348 from Poland, 84,000 Jews, 71,000 Germans, 52,000 Scandinavians, and many others; . . . not one of the entire number having been examined for the presence of venereal disease—and all admitted through a wide-open physical gate."

IN REPRESENTATIVE CITIES.

BERKELEY, CAL.

HOAG, Ernest Bryant and HALL, Ivan C. A preliminary report on contagious diseases in schools. American academy of medicine. Bulletin, 13: 81-87, April 1912. charts.

Reprinted.

"The necessity for the correction or control of such physical defects as those of hearing, sight, circulatory disorders, obstruction of the nose and throat, as well as certain deformities, such as those of the spine, chest, feet and legs, might often be avoided, if proper attention to the contagious diseases of childhood were given serious consideration during school life.

"The principal points then to be considered in relation to contagious diseases in schools are:

- "1. The direct effects of the diseases themselves.
- "2. The direct or indirect effects of such diseases in producing physical 'defects.'
- "3. The relation of these diseases to retardation and elimination.
- "4. The cost to the school department through decrease of average daily attendance, on which appropriations are often in part based.
- "5. The cost to the family for medical treatment, nurses, etc.
- "6. The cost to the individual through general lowered vitality or direct physical disability of one sort or another.

"In order to study with any degree of accuracy the effects of contagious diseases in schools, certain accurate methods for keeping records must be devised and carefully followed. For the purpose of illustration the following method is presented as having proved satisfactory in the schools of Berkeley.

"1. Every case of contagious disease is reported to the city health department and here recorded by the card-index system.

"2. The health department notifies the school department in each case, and a similar record is made here.

"3. The school department notifies every principal of a school in whose district a contagious disease is reported.

"4. Every principal inquires carefully into the cause of continued absence on the part of the pupil, and notifies the school department of every contagious or suspicious disease which first comes to his attention.

"By this cross-checking method there remains very little chance for any contagious children's disease to fail of being reported and properly recorded.

"5. A *contagious disease map* is made of the entire city and arranged by school districts, thus indicating at a glance where the *focus of infection* for any given disease exists.

"6. Various tables and curves are made indicating the contagious status of each school.

"7. Other tables and curves may be made to any extent desired, showing such points as age distribution of contagious diseases, mortality rate, time lost, cost of sickness to family or school, relation to weather or season, relation to ventilation in home or school, relation to vacations, and relations to any other things which may be deemed important or interesting.

"The relation between physical defects and contagious diseases is a problem which will prove of value if followed out carefully, but it is very difficult to obtain accurate data. . . .

"By means of the method indicated I have with the aid of Mr. Ivan C. Hall . . . been able to determine some interesting data in respect to contagious diseases in the Berkeley schools. It will be possible . . . to summarize only a portion of our results, in the hope that this may prove suggestive to other localities. Our numerous tables and curves will have to be mostly omitted. . . .

"The death rate from all causes in Berkeley from 1906 to 1910 inclusive shows an average of 11.8 per 1,000 of population. The total rate has fallen from 15.1 per 1,000 in 1906 to 9.4 per 1,000 in 1910, a reduction of 37.7 per cent. The death rate in Berkeley for 1910 was lower than the average for the state, which was 13.6 per 1,000. . . .

"This paper would particularly emphasize the importance of accurately collecting data and exhibiting it as far as possible in a graphic form by means of charts and the plotting of curves. By this means information can be instantly grasped and the problem much more easily solved. Once facing the situation in any community in respect to transmissible diseases in schools the prophylactic or other measures necessary to put into use may be easily applied."

BOSTON, MASS.

Boston. School committee. Report of the Commission appointed . . . to investigate the problem of tuberculosis among school children. Boston, Printing department, 1909. 11 p. illus. 8°. (School document no. 2, 1909)

"Five thousand is a conservative estimate of the total number of tuberculous children in the public schools of Boston."

HARRINGTON, Thomas F. The superintendence of infected children when out of school and the conditions of their readmission to school. In III^e Congrès international d'hygiène scolaire, 1910. Rapports. v. 1. Paris, A. Maloine, éditeur, 1910. p. 272-82. charts. tables.

Chiefly, in Boston.

"The communicable diseases that are of special consideration in school life fall into three general classes: (1) Zymotic diseases; (2) tubercular affections; (3) contagious skin diseases.

"Medical inspectors and school nurses have done much to detect, exclude, and follow up these foci of infection. Board of health inspection has not availed much in controlling the quarantined cases in the homes. . . . A system which promises high results in measures to control infected children excluded from school has been inaugurated in Boston by the district nursing association. Nurses have been appointed for the specific purpose of supervising in the homes supervised cases. . . . She keeps in close touch with the home by repeated regular visits—instructing, observing, and guiding the family during the entire period of quarantine. . . . This special corps of nurses does not enter the schools but keeps closely informed about school diseases in the district. . . .

"In diphtheria quarantine the problem is more difficult.¹ One per cent of well persons carry typical diphtheria bacilli of the morphological type which give a positive laboratory diagnosis. . . .

"The belief that scarlet fever and diphtheria are spread by school attendance principally is not supported by reliable data. . . . The decline in the morbidity . . . starts before the school closure and the increase in the number of cases begins before the opening of the fall term of school. . . .

"Tuberculosis is seldom of such a quantity as to require supervision out of school. . . . In an examination of more than 90,000 children in the Boston public schools showing more than 5,000 anaemias, glandular, and undersized children, there were only 156 cases of tuberculosis. . . . Genuine pulmonary tuberculosis, as well as open tuberculosis of bones or skin, should be excluded from regular schools. . . . In Boston such cases are segregated into a hospital school which permits the child to return to his home each evening."

SLACK, Francis Hervey and others. Diphtheria bacillus-carriers in the public schools. American medical association. Journal, 54: 951-54, March 1910. tables. map.

"An entirely new procedure . . . when, acting on the suggestion of Dr. Richard C. Cabot, the school board suggested, under advice of its committee of physicians, the taking of cultures at the beginning

¹ See Slack, Francis Hervey and others (following reference).

of the school year from all the pupils in the Brighton district, and the keeping from school of those found to be bacillus-carriers."

The estimated number of pupils was about 4,500, just 99 cases, or 1.16 per cent (positive). The author gives the following conclusions:

"1. At least 1 per cent of all healthy school children are carriers of morphologically typical diphtheria bacilli (Westbrook's A, C and D types). 2. Such bacilli are communicable . . . and the condition is usually a transient one. 3. The organisms are ordinarily of little or no virulence. 4. While it is possible that by passing through a susceptible individual their virulence might be raised to cause the disease, this is not a frequent occurrence. 5. The disease is kept alive in a community rather by virulent organisms in immune persons than by these non-virulent bacilli. 6. Where virulent diphtheria bacilli are present, as shown by outbreaks of the disease, . . . isolation of those showing positive cultures is a duty owed to the community. 7. Where the disease does not exist, isolation of carriers of probable non-virulent bacilli is of no proved benefit. . . . 8. The attempt to control diphtheria in a city by a round of cultures from all school children at the beginning of the school year does not seem encouraging from this series of tests. 9. The proposition to stamp diphtheria out of a city by cultural tests of all the inhabitants and isolation of all carriers is impossible from any practical standpoint."

CHICAGO, ILL.

Chicago. Department of health. Municipal laboratory. Diphtheria carriers in schools. In its Report, 1907-1910. p. 11-12. table.

"Of 6,468 school children examined during the year 1910, during the diphtheria epidemic of November and December, 744 or 11.96 per cent were at the time of culturing nonsick carriers of morphologically typical Klebs-Loeffler bacilli. . . . The largest number of positives found in a single room was 22, including the teacher, out of 25 persons. . . . The longest duration of a single case was six weeks. The average time in which the bacilli disappeared from the throat was 8.23 days."

All positive cases were placed in quarantine, and a placard marked "Diphtheria carrier here" was posted on the premises. "The effectiveness of the control of diphtheria by isolation of carrier cases may be judged from the fact that after about five weeks . . . the epidemic was effectually stamped out."

CINCINNATI, OHIO.

BOUDREAU, Frank G. Epidemic poliomyelitis. Ohio. State board of health. Monthly bulletin, 2: 71-78, March 1912.

"The measures adopted by the health department of Cincinnati seemed to me to be particularly well adapted to our knowledge of the disease and what we can with justice enforce, without being too arbitrary or too lenient I commend them to your attention.

"PREVENTIVE MEASURES.

"All cases are required to be reported to the health office. Any case of any meningeal affection is investigated, lest it might be a case of infantile paralysis, and any such case that in the opinion of the investigator seems suspicious, is treated as a case of infantile paralysis.

"The house in which such cases occur are placarded with a sign, stating that there is a contagious disease within.

"All children connected with a school are removed from school for a period of three weeks.

"The patients are isolated as much as possible, and especially are children kept away from a case.

"Those who have been exposed are kept away from children as much as possible, and isolated, with the exception that "bread winners" are not kept away from their work.

"In case of death the funeral is required to be private and must take place within 24 hours. . . ."

CLAIRTON BOROUGH, PA.

COLCORD, A. W. Diphtheria epidemics and the public school. American medicine, n. s., 7: 245-52, May 1912. illus.

Epidemic in Clairton Borough, Pa., of 22 cases, of which 18 were pupils of the public schools. Features of the epidemic:

"1. Schools were not closed, but children were daily assembled and kept under observation. 2. Systematic and frequent examination of all throats in the public schools. 3. Cultures taken of all suspicious throats . . . examined at the expense of board of health. 4. Finding of 'diphtheria carriers' and the quarantine and giving of antitoxin to the same. 5. Both cases of 'carriers' occurred in families where several children had been sick and no physician had been in attendance. . . . 6. No case occurred in room after the finding and isolation of the 'carriers.' Whole epidemic was soon stopped."

EAST ST. LOUIS, ILL.

East St. Louis. Board of education. Medical inspection. *In its Annual report, 1910-11.* p. 47-48.

"We hope that we may have medical supervision in our schools in the near future. It seems fair and right and the consequent advancement of children when relieved is so much greater and the time spent in school so much less, that the board of education really gains from a money point of view.

"A complete plan of inspection would include (a) an annual or semiannual examination of every school child, with especial reference to: (1) Defects in eyes, ears, nose, mouth, and throat; (2) lungs and chest; (3) spinal system; (4) general strength; (5) nervous force. (b) Daily examination of children who give signs of illness, to prevent the spread of contagious diseases. (c) An annual inspection of the sanitary condition of each school building. Trained nurses to visit the homes of poor children, who are ill, would be a logical part of such a system."

A table of contagious diseases. For teachers and parents, p. 76-77.

Contagious diseases.—Table for teachers and parents.

[NOTE.—Pupils having any of these diseases are by law excluded from school. A board of health certificate is required for the first four diseases. In other cases admit to school with physician's certificate, or sometimes with mother's certificate, in accordance with the time given in this table.]

Disease.	Period of—		Quarantine.			Symptoms.
	Incu- ba- tion.	Invasion.	After expo- sure.	After at- tack.	Do not admit to school until—	
Diphtheria.....	Days. 2-7	Days.	Days. 12	Days. 12	.....	Gray or brown patches on tonsils, white membrane in throat, bloody or irritating nasal discharge, enlarged glands at side of neck, fever sometimes croupy cough; some may be carried in clothing.
Scarlet fever.....	2-7	1-2	14	30	After sore throat and scaling of skin disappears.	Vomiting, sudden fever, red sore throat, red tonsils, enlarged papillae on tongue, flushed skin, fine scarlet rash on chest and neck in from 12 to 36 hours, sometimes pale ring about mouth. Most contagious from scales of skin from ninth to forty-second day. Often carried in clothing.
Smallpox.....	9-12	2-3	18	18	All scabs have disappeared.	Chill, headache, vomiting, pains in back, rash like scarlet fever or like measles fourth day rash on forehead. May be carried in clothing. Rash, catarrh, slight fever. Mild scarlet fever resembles this; be careful.
German measles... Measles.....	8-16 8-14	Few hours. 4	7-10 16	12 12	Three days after recovery of last case, with certificate; 14 days without.	Watery eyes, sneezing, nasal discharge, cough, sometimes sore throat, rash on back of neck and forehead, small dark red spots, fourth till seventh day; skin peels eighth till thirteenth or eighteenth day. May be carried in clothing.
Chicken pox.....	13-16	Few hours.	12	14	All scabs have disappeared, 14 days after recovery of last case in family.	Small red pimples on face; vesicles filled with turbid serum changing to black or brownish crusts on body or scalp. Smallpox may be mistaken for this disease.
Mumps.....	14-21	.....	.....	20	Seven days after swelling and tenderness disappear.	Neck glands swollen, lobe of ear raised chewing and sour tastes painful, headache, vomiting, depression. Seldom contagious before symptoms appear. Rarely, if ever, carried in clothing.

Contagious diseases.—Table for teachers and parents.

Disease.	Period of—		Quarantine.			Symptoms.
	Incu- ba- tion.	Invasion.	After expo- sure.	After at- tack.	Do not admit to school until—	
Whooping cough.	<i>Days.</i> 6-10	<i>Days.</i> 1-4	<i>Days.</i>	<i>Days.</i> 42	After end of spas- modic coughing.	A hard cold for 10 days, spas- modic cough, whooping tenth to fortieth day, thick nasal discharge, vomiting, nose- bleed. Rarely, if ever, carried in clothing.
Influenza (grip) ..	1-7	.....	.....	.....	.....	Chill, fever, vomiting, more sudden onset and slower re- covery than common colds; contagious. Usually send home children with fresh sudden sneezing colds; if not sent home, children with colds should be seated in front row.
Sore eyes, pink eyes.	.....	.....	.....	.....	Till cured or cer- tificate.	NOTE.—Many eye diseases are contagious; do not take risks; beware of towels and handkerchiefs.
Ringworm	.....	.....	.....	.....	do.....	Parasitic, bald patches on scalp, scabby patches on body. Recommend that a physician be consulted.
Impetigo, conta- gious.	.....	.....	.....	.....	do.....	Parasitic, rough, scabby sores, especially when skin has been broken; beware of towels. Recommend that a physician be consulted.
Lice (pediculosis)	.....	.....	.....	.....	Till cured	Recommend three applications of lard and sulphur, or crude petroleum, soap suds follow- ing: fine comb with vinegar for nits.
Itch (scabies).....	.....	.....	.....	.....	do.....	Parasitic, itching sores on wrists, back of hand, and be- tween fingers. Recommend applications of lard and sul- phur, or crude petroleum.
Tuberculosis.....	.....	.....	.....	.....	Till cured or cer- tificate.	"Loss of appetite, weakness, languor, listlessness, are among the early signs. Pal- lor, marked anemia, loss of weight, excessive emaciation, the presence of enlarged glands in the neck, are indi- cations that there is some- thing wrong. If in addition to this there is a cough, with or without sputum, the child should most certainly be ex- amined by a physician."
Tonsillitis.....	.....	.....	.....	.....	Till cured	

Incubation is the time between exposure and first symptoms. Invasion is from first symptoms to eruption or marked disease.

Please notify the superintendent and school physician in writing of all known cases of tuberculosis, epilepsy, St. Vitus dance, and eczema. In center schools require a certificate from the superintendent or a physician in all cases of peeling hands. Colds and influenza are probably contagious. Exclude pupils with sore throat until cured or until they bring a certificate.

Look out for second crop of measles in school eight days after the first outbreak.

Pupils exposed to mumps or whooping cough may attend school provided watch is kept for symp-
toms.

Pupils exposed to diseases "carried in clothing" may not attend school until after the days of quaran-
tine as above, without a physician's certificate. Approved by East St. Louis board of health, July, 1911.

GREENSBURG, IND.

BLAND, Curtis. Report of diphtheria epidemic in Greensburg [Ind.] during the months of September and October, 1911. Indiana. State board of health. Monthly bulletin, 14: 147-49, December 1911.

"Out of a total of 872 cultures taken from grade and high-school pupils, September 30-October 6, 1911, 268, or 33 per cent, came back positive. This high percentage of 'carriers' . . . and the large number of contacts under quarantine . . . made us feel justified in keeping the schools closed."

All parts of the town were found to be about equally infested with "carriers." Without doubt the street carnival, held by the Eagles from September 11 to 16, inclusive, had served to distribute the diphtheria bacilli.

As soon as positive reports were received the "carriers" were quarantined. Eventually, 260 homes were quarantined, containing about 1,200 persons, and this in a town of 6,000. Out of 400 "carriers" found only 4 developed clinical symptoms of the disease.

Conclusions:

"1. To fight successfully an epidemic of diphtheria 'carriers' must be found and . . . with contact cases must be isolated. 2. A bacteriological examination of the throat must be made in order to discover the 'carriers.' This makes absolutely necessary the maintenance of a bacteriological laboratory of the State board of health. 3. That antitoxin bears the same relation to clinical diphtheria that water does to fire. If the antitoxin is used in time and in sufficient quantities . . . in the first 24 hours of the disease, the death rate is practically nil and there are no persistent bad after effects of the disease."

NEW YORK, N. Y.

BAKER, Sara Josephine. Inspection for the detection of cases of contagious diseases. In *her* The Division of child hygiene of the Department of health of the city of New York. 1912. p. 64-70. tables. insert. illus.

1. Each nurse visits each school in her charge before 10 o'clock each morning and inspects in a room set apart for this purpose all children referred by the teachers. 2. Children manifesting any signs or symptoms of an acute contagious nature, such as smallpox, diphtheria, scarlet fever, measles, chickenpox, whooping-cough or mumps, are referred by the nurse to the principal. Cultures are taken in every case of sore throat. If the child is not suffering from a contagious disease, it is notified to return to school and is given an official certificate to that effect. If a confirmatory diagnosis of contagious disease is made the patient is isolated, the apartment placarded with a notice of the character of the disease, and the case immediately reported to the division of contagious diseases, which thereafter assumes supervision and control. 3. Children affected with a contagious eye or skin disease are given a notice to take home to their parents.

HERRMANN, Charles. The prevention of the spread of contagious diseases in public schools. Internationales archiv für schulhygiene, 6: 1-15, October 1909. forms. tables.

Describes the method in New York City. The medical inspector visits each school every morning between 9 and 10 o'clock and examines: "1. Those pupils presenting any indication of contagious disease. 2. Those pupils previously excluded on account of contagious disease, who have returned. 3. Those pupils who have been absent for 3 or more days on account of sickness. Every morning each principal receives a list of all the cases of contagious disease which have been reported on the previous day. This list is sent to every classroom."

New York (City) Association of tuberculosis clinics. Significant features. In *its* Fourth annual report, 1911. p. 18-19, 35 (table).

In 1910 there were under observation 500 children. In January, 1911, there were 1,243 children under observation, an increase of 149 per cent. In addition, there were treated during the year 4,272 new cases and 1,293 old, making in all a total of 6,808 children treated, an increase of 2,103, or 45 per cent over the number treated in 1910. The establishment of additional children's classes is strongly urged.

PHILADELPHIA, PA.

ROACH, Walter W. The rôle of the school in the spread of scarlet fever. A lesson from one school in Philadelphia. American journal of public health, 2: 450-51, June 1912. diagram. map.

Reprinted.

Epidemic in the T. M. Pierce public school.

First case reported January, 1912; 6 cases followed in February. "There was no classroom inspection during this time, the school doctor under the rule calling each morning at the principal's office to examine

children referred to him by the teachers, who in the last analysis were the only medical inspectors in the classrooms, with the whole system depending upon their ability to primarily detect disease.

"The 'carriers' were undoubtedly in the school, hidden and unrecognized. Twelve more cases followed in March and . . . when the medical man began classroom inspections he picked up 7 cases in the school desquimating. If it had been a neighborhood epidemic, other cases would unquestionably have occurred among pupils attending the Walton and Belview Schools, but the cases point to one focus. The Pierce school building was fumigated, inspectors stationed at each entrance and the 1,400 pupils carefully examined. Suspicious ones were refused admission and investigated. . . . The whole situation was cleared up in a short time."

PROVIDENCE, R. I.

CHAPIN, Charles Value. The spread of scarlet fever and diphtheria in schools. American journal of public hygiene, 20: 813-17, November 1910. tables.

For the purpose of studying the incidence of these diseases in schools in Providence, R. I., sets of cards are kept—one set for scarlet fever and one set for diphtheria, with a card for each school. A table on page 816 shows the age distribution of the reported cases of scarlet fever and diphtheria in Providence for 21 years. The amount of disease increases until the first year of school attendance when it begins to fall off.

"While it appears to be true that the diseases under consideration rarely spread in schools, and that the schools are safer than the streets . . . it is probable that the rules in regard to the school attendance of children from families where these diseases exist, are in most of our cities, amply sufficient to prevent extension from reported cases. Disinfection of the school is, generally speaking, a useless procedure. The trouble comes not from the recognized cases but from the 'missed cases' and healthy 'carriers.' . . .

"The common drinking cup must go. The use of the slate encourages carelessness with the saliva. . . . The roller towel is almost as bad as the common drinking cup. . . . The use of modeling clay and sand, and much other kindergarten work, encourages personal uncleanness. . . . If, however, the child is taught to wash its hands, and wipe them on its own towel, before touching the clay, and to keep the fingers out of the mouth while modeling he will learn that it is wrong to inflict his own saliva on another. By such teaching the spread of contagious diseases in school may be made even less than it is."

VALPARAISO, IND.

NESBIT, Otis B. Books as carriers of scarlet fever. American medical association. Journal, 59: 1526-28, October 26, 1912. table.

Conclusions:

"1. If books act as carriers, it is only immediately after being contaminated with the discharges of the patient; yet this investigation has failed to reveal a single instance of this kind. 2. Books that have been used by scarlet fever patients do not long contain the infection in such a way as to transmit the disease to man. 3. Any book which has been handled by a scarlet fever patient should be burned or fumigated."

Regarding epidemic of scarlet fever Valparaiso Ind., September 1906-June 1911, during which time "there were 400 cases, of which only 255 were reported to the city board of health, 145 were not reported and most of them were not subjected to quarantine regulations. Beginning in February, 1911, a special study of the epidemic was begun."

MEDICAL INSPECTION OF THE EYES, EARS, NOSE, AND THROAT.

GENERAL REFERENCES.

ALLEN, William Harvey. Eye strain. In his Civics and health. Boston [etc.] Ginn and company [1909] p. 72-82. illus.

"For some time to come eye tests will find eye troubles by the wholesale in every industrial and social class, in country as well as city schools. In 415 New York villages 48.7 per cent of school children had defects of vision—this without testing children under 7—while 11.3 per cent had sore eyes."

ALLPORT, Frank. The examination of children's eyes, ears and throats. American school board journal, 41: 2, November 1910.

"This is a field that can be efficiently covered by the teacher, for . . . sufficient data will have been obtained to enable him or her to know that the child has passed either a satisfactory examination, or has some defect. . . . Examination consists in the ascertaining of a few simple facts as follows:

"1. Does the pupil habitually suffer from inflamed lids or eyes? 2. Does the pupil fail to read a majority of the letters in the No. XX line of the Snellen's test type with either eye? 3. Do the eyes

and head habitually grow heavy and painful after study? 4. Does the pupil appear to be cross-eyed? 5. Does the pupil complain of earache in either ear? 6. Does pus or a foul odor proceed from either ear? 7. Does the pupil fail to hear an ordinary voice at 20 feet, in a quiet room, with either ear? 8. Is the pupil frequently subject to 'colds in the head' and discharges from the nose and throat? 9. Is the pupil an habitual 'mouth breather?' If an affirmative answer is found to any of these questions, the pupil should be given a printed card of warning to be handed to the parent."

ALLPORT, Frank. The eyes and ears of school children. *Medicine*, 12: 258-68, April 1906.

Also in *Vermont medical monthly*, June 15, 1906; in *Pediatrics*, 18: 465-81, August 1906; in *Internationales archiv für schulhygiene*, 3:20-36, October 1906; and in *American school hygiene association. Proceedings of the first, second, and third congresses.* Published November, 1910. Springfield [Mass.] American physical education review, 1910, p. 218-31.

Read at third congress, 1907. Reprinted.

"In order to facilitate the work and bring it more fully before the profession, I secured at the New Orleans meeting of the American medical association the passage of the following resolution, both in the ophthalmological section and the house of delegates:

"Whereas the value of perfect sight and hearing is not fully appreciated by educators, and neglect of the delicate organs of vision and hearing often leads to disease of these structures, therefore, be it

Resolved, That it is the sense of the American medical association that measures be taken by boards of health, boards of education, and school authorities, and, where possible, legislation be secured looking to the examination of the eyes and ears of all school children, that disease in its incipency may be discovered and corrected.

"Since then these resolutions have been adopted by the Mississippi valley medical association and by the State medical societies of the following States: Minnesota, Colorado, Illinois, Montana, New York, Indiana, North Dakota, Rhode Island, Alabama, Michigan, Utah, South Dakota, Delaware, California, Massachusetts, Arizona, West Virginia, Kentucky, Louisiana, Nebraska, and Washington.

"The resolutions have also been adopted by the American public health association, by the State and provincial boards of health of North America and by the State boards of health of the following States: Kansas, Minnesota, Colorado, Wisconsin, North Carolina, Vermont, Illinois, Montana, New York, Indiana, Connecticut, Ohio, North Dakota, Rhode Island, Alabama, Pennsylvania, Maine, New Hampshire, Michigan and Utah. The resolutions have also been adopted by the State boards of education of the following States: Texas, Kansas, Minnesota, Colorado, Wisconsin, North Carolina, Vermont and Connecticut. Four State legislatures, Connecticut, Vermont, Colorado and Massachusetts, have incorporated this movement in a public law. . .

"Besides this the tests are being placed in operation . . . in hundreds of schools in America where they are not required by school authorities.

"Let me then ask you, and through you all boards of health and education, all legislatures, and all who are interested in the physical and moral welfare of our children, do you believe that bad vision and hearing constitute an important barrier to the reasonable and easy acquirement of an education? Do you believe that a vast number of children are thus embarrassed? Do you believe that a great benefit to the children, to society at large and mankind in general, would be effected if such physical defects could be detected and relieved? Do you believe that some such plan as I have proposed would be instrumental in largely relieving such defects. Do you believe such a plan to be practical, unobjectionable and inexpensive? . . . Then may I ask you still another question: Why do you not take up this work and carry it through?"

ALLPORT, Frank. A plea for the systematic annual and universal examination of school children's eyes, noses, and throats. In *National education association of the United States. Department of superintendence. Proceedings, 1909.* Published by the association, 1909. p. 112-16.

Discussion: p. 117-119 (Herbert Dana Schenck—New York State conditions regarding examinations)

Also in *National education association of the United States. Journal of proceedings and addresses, 1909.* p. 266-270; in *Hygiene and physical education*, 1: 228-33, May 1909; in *Psychological clinic*, 3: 67-70, May 15, 1909; and in *Journal of the Minnesota State medical association and Northwestern Lancet*, 29: 347-50, August 15, 1909.

"About 50,000 American children are annually removed from school on account of physical inability to continue at work. . . . About 8,000,000 school children suffer from some eye defect, and about 8,000,000 from some ear, nose, or throat defect."

AYRES, S. C. Civic medical inspection of school children, with special reference to diseases of the eye, ear, and throat. *Journal of ophthalmology and oto-laryngology*, 6: 1-6, January 1911.

Also in *Lancet-clinic (Cincinnati)* 106: 662-64, December 23, 1911.

Brief historical references; and the work in Cincinnati, of medical inspectors (26 physicians) and the three school nurses who have supervision of 13 schools.

CHEATLE, Arthur H. The ears, nose, and throat of school children. In Kelynack, T. N., ed. *Medical examination of schools and scholars* . . . 1910. p. 179-81. tables.

Table given by Dr. Thomas Barr, of Glasgow, who was the first to draw attention to the subject in Great Britain. Shows the various results obtained by skilled observers in different countries up to September, 1899.

Statistics of defective hearing among school children.

Surgeon.	Place.	Children examined.	Found defective.	
			Number.	Per cent.
Sexton	New York	570	74	13
Well	Stuttgart	4,500	1,501	33.4
Moore	Bordeaux	1,768	300	17
Besold	Munich	1,885	414	22
Barr	Glasgow	600	166	27.7
Rehrer	Canton Zurich, 1890-1900	¹ 108,297		² 11.7
Cheatle	Harwell, England, district schools, 1902.	³ 1,000		about 50
Tausig	St. Louis County, Mo., 1909	2,000		7.3

¹ Who had reached school age.

² Having ears in some way affected.

³ Ages 3-16. Adenoids present in 34 children; 57 had permanent perforation of drum of ear.

NOTE.—Use in conjunction with this table, the table of Dr. Tausig, *Psychological clinic*, 3: 182, Nov. 15, 1909.

CORNELL, Walter Stewart. The prevalence of eye defects [in school children] In his *Health and medical inspection of school children* . . . 1912. p. 578-84. tables.

Bibliography on the eyes: p. 584.

Contains data showing the progressive increase of myopia through the higher grades. Statistics of Boston and Philadelphia schools, University of Pennsylvania, and the German city schools.

CORNELL, Walter Stewart. The prevalence of eyestrain in children. *Monthly cyclopaedia and medical bulletin*, 1: 114-19, March 1908. tables.

Reprinted.

The reports of examinations of the eyes of school children in Philadelphia, New York, Boston, London (England) compared.

CORNELL, Walter Stewart. Prevalence of nose and throat defects and defective hearing. In his *Health and medical inspection of school children* . . . 1912. p. 584-90. tables. fig.

From review of about 6,000 children, the following table may be formed:

Table showing prevalence of nasal obstruction.

	Children of the well-to-do.	Children of the poor.
	Per cent.	Per cent.
Young children	12	25
Children over 10 years	6	12

"Probably from the local irritation of ill-ventilated rooms, and partly from the flabby tissues resulting from poor food, the children of the slums suffer from nose and throat defects in at least twice the proportion of the children of the better classes."

New York (State) Department of health. Eye, ear, throat, and teeth examinations in schools. *Its Monthly bulletin*, n. s. 7: 70-71, March 1912.

"In rural districts it is not feasible as yet to employ physicians to make the inspection, but . . . the department of health has sent out the necessary test cards and report blanks for distribution among

the teachers, 13,854 all told. Full directions for making a test of eyesight and of hearing, and for inspecting and reporting upon the condition of the mouth, throat, and teeth accompany each set of cards. Whenever a defect is discovered it is properly recorded and the parent of the child is notified . . . and advised to consult a physician. A full record is kept at the school, and duplicates are sent to the health department. These examinations are to be made during school hours and the district superintendents are to be held responsible to see that teachers carry out the printed instructions."

SHAWAN, Jacob Albright. School activities in relation to children's eyes. See Appendix B.

STANDISH, Myles. Should the examination of the eyes of school children be conducted by the teacher or the school physician? In American school hygiene association. Proceedings, 1911. Springfield, Mass., American physical education review, 1911. p. 98-101.

Also in American physical education review, 16: 243-46, April 1911. Title: Should the examination of school children be conducted by the teacher or the school physician?

"The examination by the school physician if limited to the card-letter test would be of very little more value than where it is conducted by the teacher. . . . If the doctor's examination is to be better than the teacher's, it must be conducted with belladonna in the eyes to prevent accommodation. Such an examination . . . has no certain relationship to the question in hand, viz, Are the child's eyes exerting a deleterious effect upon the child's school life?

"If then neither the examination with the test-letter card, nor an accurate scientific examination . . . is to be relied upon as indicating what children should be advised to use glasses, to what shall we look for the most important factor in this decision? In no other direction than to the symptoms."

WHITE, Daniel W. and Treibly, Charles E. A brochure on trachoma. Ophthalmic record, 21: 223-51, May 1912. figs.

Bibliography: p. 251.

"A comparative estimate of the number of known cases of trachoma amongst the Indians of Oklahoma could safely be placed at 60,000 to 70,000, or about 60 to 70 per cent of the entire population (Indian) of the State. It can also be safely estimated that from 60 to 80 per cent of the Indian population of the United States have trachoma.

During December, 1910, there were over 600 examinations made of eyes of the pupils at the United States Indian school at Carlisle, Pa. Of this number, there were 414 cases free of trachoma, 37 suspicious cases, and 149 known cases of trachoma. Males under 10 are more susceptible than females. Females over 10 have shown more susceptibility than males. This has been found to be the case in all Indian schools.

IN REPRESENTATIVE LOCALITIES AND INSTITUTIONS.

ARIZONA.

MARTIN, Alice. A year's work at the Eye hospital of the United States Indian school, Phoenix, Arizona. Southern California practitioner, 25: 410-12, September 1910. tables.

There were 444 boys, and 390 girls examined. The following table shows the results obtained:

	Boys.	Girls.
Normal.....	65	56
Suspicious.....	56	32
Acute trachoma.....	167	127
Subacute trachoma.....	145	141
Old trachoma.....	11	24

The number of pupils suffering from complications was 17. Two hundred and sixty-five operations were performed on boys; 269 on girls. Of the total number of boys and girls in the school, 75 per cent had trachoma.

CALIFORNIA.

REINHARDT, G. F. The Infirmary and the Department of hygiene. In California. University. Biennial report of the President 1908-1910. Berkeley, The University press, 1910. p. 125-29. (University of California bulletin, 8d ser. vol. IV, no. 4, January 1911)

Tabulation of the eye conditions of 880 students; eye-examination, 1909-10, has become a part of the regular physical examination given to all matriculants at the university.

	Men.	Women.	Total.
Normal.....	125	64	189
Hyperopia.....	172	73	245
Simple hyperopic astigmatism.....	165	95	260
Compound hyperopic astigmatism.....	11	11	22
Myopia.....	39	21	60
Simple myopic astigmatism.....	36	17	53
Compound myopic astigmatism.....	16	5	21
	564	296	860

From the above table it will be seen that only 22 per cent of the students examined were normal.

CONNECTICUT.

Bristol. Board of school visitors. Eye test. *In its Annual report*, year ending July 14, 1911. p. xxix. table.

Pupils tested.....	1,927
High-school pupils tested.....	220
Per cent defective.....	7
Per cent of high-school pupils defective.....	11

"Once in three years the eyes of the pupils in the public schools are tested according to directions furnished by the Connecticut board of education."

MASSACHUSETTS.

COWES, William Pearce. The results of the clinical throat examination of 212 school children. *Boston medical and surgical journal*, 162: 215, February 17, 1910.

The children examined were in 4 different buildings and 6 different rooms. The ages were from 6 to 15 years. About 50 per cent were native born, a large percentage being girls. Of the 212 children, 183, or over 72 per cent, showed marked chronic tonsillar hypertrophy—so marked in a number of cases that the tonsils practically met in the central line. Of the whole number examined, 103, or about 50 per cent, showed markedly carious teeth. Of the whole number, 141, or 66 per cent, showed enlarged submaxillary glands.

Of the 153 children with chronic hypertrophic tonsils, 90, or 58.8 per cent, showed marked dental caries; 120, or 77 per cent, exhibited marked enlargement of the submaxillary glands.

"In the large percentage of chronic tonsil cases . . . three factors act to a large extent as predisposing causes: 1. Poor home surroundings; lack of fresh air and sunlight. 2. Improper and insufficient food and neglect of the teeth. 3. The wretchedly unhygienic conditions existing in some of our public schools."

Fall River. School committee. Medical inspection [1907-1911] *In its Annual school report*, 1911. p. 15-18. table.

Year.	Exam-ined.	Found defective in sight.		Found defective in hearing.	
		Number.	Per cent.	Number.	Per cent.
1907.....	13,225	2,637	20.6	543	4.1
1908.....	14,452	2,526	17.5	477	3.3
1909.....	15,371	2,209	14.4	442	2.9
1910.....	14,782	2,291	15.5	395	2.9
1911.....	14,523	2,164	14.8	323	2.2

"The most important occurrence of the year in this line was the establishment of free clinics at the Union Hospital."

Massachusetts. State board of health. Directions for testing sight and hearing (in accordance with Chap. 502, Acts of 1906, as amended by Chap. 257, Acts of 1910)

"1. Tests will be made as early in the school year as possible, preferably in September.

"2. Made under the most favorable conditions, as nearly as possible under the same conditions, preferably in well lighted rooms, in the early part of the day.

"3. Testing done by the teacher of the class, and supervised by the principal to see that the conditions of the test are as uniform as possible for the different classes.

"4. Children wearing glasses will be tested *with the glasses*, and if found normal will be so recorded.

"5. Examine all children, but record as defective only those whose vision is 20/40 or less, in either eye.

"6. Report to the State board of education the whole number of children examined and the number found defective according to the standard given in No. 5."

MISSOURI.

SNEED, C. M. A report upon medical inspection in the Jefferson City public schools. *Missouri school journal*, 25: 535-39, December 1908. tables.

An examination of the eyes, ears, throat and nose conditions of 1,000 white children and 100 negro children.

	Normal.	Defective in vision.
White.....	635	365
Negro.....	81	19

A comparison was made between the percentage of defects found in the 116 examined in the high school and in 147 in the lower grades. The children of the high school showed visual defects in 40.51 per cent, while the children of the lower grades 29.43 per cent. Other defects were found in the 1,000 white and 100 negro children, as exhibited in the following table:

Defects.	Of 1,000 white children.		Of 100 negro children.	
	No.	Per cent.	No.	Per cent.
Mouth breathing.....	242	24.2	16	16
Frequent colds, etc.....	387	38.7	22	22
Pain after study.....	295	29.5	34	34
Wearing glasses.....	28	2.8	5	5
Eye defective:				
1 eye.....	138	13.8	7	7
2 eyes.....	237	23.7	12	12
Ear defective:				
1 ear.....	64	6.4	4	4
2 ears.....	13	1.3	3	3
Inflamed lids.....	175	17.5	11	11
Trachoma.....	83	8.3	1	1
Discharging ears.....	40	4.0		
Ears ache.....	113	11.3	17	17
Cross-eyed.....	30	3.0	2	2
Tonsils large.....	86	22.8	1	1
Abnormalities.....	10	2.6	6	6
Gottre.....	13	3.6	1	1

Careful throat inspection was made upon only 377 children. The tonsils were considered enlarged if they were somewhat larger than an almond.

There were 551 cards of warning issued to pupils for the various defects found—74 out of the 423, or 17½ per cent, who reported having received cards, had consulted a physician.

This study, differently arranged and credited to Dr. Sneed and Guy Montrose Whipple, is also in *Psychological clinic*, 2: 234-38, January 15, 1909. The following table is from the latter publication:

	School work satisfactory.	School work unsatisfactory.
Vision good.....	469	166
Vision defective.....	228	137

TAUSSIG, Albert E. An investigation as to the prevalence of visual and aural defects among the public school children of St. Louis County, Mo. *Interstate medical journal*, 18: 721-31, November 1909. tables.

Also in Psychological clinic, 3: 149-50, November 15, 1909. Title: "The prevalence of visual and aural defects," etc.

Two thousand children were examined, about 30.6 per cent of whom had vision that was below normal in one or both eyes. A little over 14 per cent showed vision that was less than two-thirds of the normal in both eyes, children with vision less than half the normal in both eyes being a little less than 3 per cent of the total number examined.

Defective sight and hearing of public-school children (tables combined).

Year.		Visual defects.	Defective hearing.
		<i>Per cent.</i>	<i>Per cent.</i>
1870	Heidelberg.....	35.0	.....
1904	Edinburgh, Scotland.....	43.2	12.2
1907	Dunfermline.....	17.0	4.0
1907	Cleveland, Ohio:		
	Well-to-do district.....	32.4	5.2
	Congested district.....	71.7	1.8
1907	Massachusetts (omitting Boston).....	19.9	5.8
1907	Boston and environment.....	30.7	7.7
1908	Boston.....	23.0	7.6
1908	New York City.....	31.3	2.9
1908	New York City, Borough of Manhattan.....	10.2	1.9
1909	Chicago.....	19.4	2.7
1908	Jefferson City, Mo.:		
	Either eye.....	36.5	7.7
	Both eyes.....	22.7	1.3
1909	St. Louis County, Mo.:		
	Either eye less than 20/20.....	30.6	17.3
	Both eyes less than 20/30.....	14.3	12.2
	Both eyes less than 20/40.....	2.8	.....

		Sex ratio.		Sex ratio.	
		Boys.	Girls.	Boys.	Girls.
1908	New York City.....	15.7	20.8	.....	.....
1909	St. Louis County.....	28.1	31.1	8.7	6.0
	Seriously defective.....	13.5	15.1		

¹ Either ear.

² Both ears seriously defective.

Conclusions derived from data of the children examined:

"1. Unrecognized or at least untreated defects of vision and hearing are nearly as common in our suburban communities as in large cities. Both call urgently for systematic medical inspection.

"2. Unrecognized adenoids, so extreme as to cause serious interference . . . were not found to be very common. In nearly 1 per cent of the children, however, the adenoids imperatively demanded operation. . . .

"3. Defective vision seems a little commoner among girls and defective hearing among boys. . . .

"4. In other communities a progressive increase in the prevalence of impaired vision was noted as the children grew older, whereas in St. Louis County the reverse was found to be true, both as regards slight and grave defects. . . . It does not, however, furnish an argument against inspection. . . . The fact that one-third of the children with spectacles wore unsuitable glasses is also suggestive in this respect.

"5. Our data show that to a certain, though not very great extent, the children with impaired vision or hearing progress more slowly in their school work than their normal fellow students. The evil effects of unrecognized physical defects go, however, far deeper than this. . . . Adequate medical school inspection would lead to the recognition and to a great extent, to the correction of such defects. . . .

"6. The marked divergence between the data obtained in different cities, or, in the same city, by different investigators, indicates the need for greater uniformity in methods of tabulating these statistics. . . . For statistical purposes it is important for the investigator to state just where he draws the line between defective and normal. As regards vision, hearing and adenoids, a division into slight and serious defects is to be recommended.

"7. In estimating the value of medical inspection of school children . . . the greatest benefit to be derived from inspection consists in the early recognition of contagious diseases and the prevention of school epidemics."

NEW HAMPSHIRE.

Manchester. School committee. [Medical inspection of elementary school children] *In its Report*, year ending December 31, 1909. p. 17-18.

Teachers annually test the eyes and ears, records being preserved.

Total tested.....	4,625
Defective vision.....	1,106
No vision in one eye.....	27
With one eye defective.....	359
Both eyes defective.....	720
With defective hearing.....	746
Deaf in one year.....	29
With one ear defective.....	364
Both ears defective.....	353

Of these 1,852 pupils found defective in vision and hearing, 823 are over age for their grades and 491 have failed one or more times to be advanced with their classes.

NEW YORK.

DRESBACH, M. Examinations of the eyes of college students. Medical record, 82: 190-95, August 3, 1912.

References: p. 195.

Cornell University. Examination of 3,826 enrolled men, and 360 examinations of women.

Men.

Percentage wearing glasses.....	27
Percentage wearing glasses constantly.....	3 or 4
Percentage of 842 wearing glasses needing change of lenses.....	40
Number blind or practically so in one eye.....	15
Number totally blind in both eyes (year 1911-12).....	6
Percentage with weak accommodation (no glasses worn).....	4
Total per cent with subnormal acuity.....	30
Percentage who have never consulted a specialist.....	40
Percentage with symptoms of eye strain (no glasses worn) approximately.....	25
Percentage showing symptoms, and glasses worn.....	22
Muscular imbalance of 5° or more (no glasses worn).....	2
Nystagmus.....	1 case.
Diplopia.....	Several cases.

Women (360 examinations)

	Per cent.
Vision normal, both eyes.....	70
Hyperopic astigmatism.....	88
Myopic astigmatism.....	7
Unclassified astigmatism.....	3

Defects of 155 students from rural districts, attending for 12 weeks only.

	Per cent.
Hyperopic astigmatism.....	40
Myopic astigmatism.....	50
Unclassified.....	10

A questionnaire was sent out, and replies received from 105 institutions of learning, with the following results: Not requiring eye examinations, 22. Among these were 3 prominent schools of technology, 2 well known schools for women, and 1 great university. In about a dozen only is an eye specialist engaged. In 17 institutions estimates of students needing glasses ranged from 10 to nearly 100 per cent, the latter figure being from a Government school, "where, it is stated, practically every student wears glasses before he finishes his course."

SCHENCK, Herbert Dana. [Inspection in New York State of the eyes, ears, noses, and throats of public-school children] *In National education association of the United States. Department of superintendence. Proceedings, 1909. Published by the association, 1909. p. 117-19.*

"No systematic effort . . . for an annual record of the condition of the sight, hearing, and nasal operations has been made by even the most progressive cities [of New York State]. . . . At a conference of the health officers in the fall of 1906 . . . a plan, essentially that in vogue for ten years in Connecticut, for four years in Vermont, and for the last two years in Massachusetts, where the examinations are compulsory, was adopted."

Examinations were made by the teachers, and confined for that first year, to the incorporated villages. Of the 448 such villages, 426 made the tests.

"The number of pupils having their eyes, ears, nose, and throat examined in the 426 villages of the State was 106,767; 5,045 of these children were under 7 years of age and did not have their eyes tested. They, however, had their hearing tested and their nose and throat examined; 100,723 then had their eyes tested as well as their hearing and an examination of their nose and throat. A little less than 10 per cent of the 106,767 examined had defective hearing and earache or both with discharge from the ears." (Corrected from letter of Dr. Schenck of Jan. 22, 1912.)

VON SHOLLY, Anna I. Trachoma: Its prevalence and treatment, especially in relation to the New York City school children. In American school hygiene association. Proceedings, 1912. Springfield [Mass.] American physical education review, 1912. p. 115-24.

The school children of New York since 1902 "have been under constant and careful examination for this disease. Twice a year, an inspection is made of all the children of the public schools. All children whose eyes show an abnormal condition of the lower lids with lymphatic dilations and follicles (the upper lids are not examined by the school inspectors) are obliged to put themselves under the treatment of a physician and continue under treatment until discharged by him. They must show to the school nurse, twice a week, satisfactory evidence in the form of a dated dispensary card or a physician's certificate that they are under treatment. Children whose eyes show muco-purulent discharge are excluded from school until this has disappeared. . . . In 1902, the health department opened a free clinic and hospital for infectious eye diseases in the lower East Side—the district most infected. Since then, three additional free infectious eye disease clinics have been opened by the department. . . .

"The statistical report of the child hygiene division of the New York City health department is as follows: In 1902, 20 per cent of the children were affected; in 1908, 7 per cent; in 1909, 6 per cent; in 1910, 3 per cent.

"Depending on what we call by the name of trachoma, we may take our choice as to whether, for example, in 1910, there were 20,915 cases of trachoma or whether they were approximately 488 cases of trachoma and acute catarrhal conjunctivitis and 20,417 cases of varying degrees of folliculosis and follicular conjunctivitis.

"About two months ago, we started, experimentally, a free clinic in a room in one of the public school buildings . . . and twice a week all the children with infectious eyes from this school and the neighboring schools are brought for treatment in squads at an appointed hour during the school session."

PENNSYLVANIA.

Pennsylvania. Medical society. Report of the Committee on trachoma. Pennsylvania medical journal, 13: 58-59, October 1909.

Chairman, C. P. Franklin.

To about three hundred ophthalmologists a set of questions was submitted regarding trachoma. The following was included: "Is there, in your community, systematic examination of school children, or of employees in large establishments engaging recent immigrants?"

The answers showed that each ophthalmologist sees annually from 1 to 200 cases. Answers revealed the fact "that there was then no systematic examination of either children in the schools or adults in employment, particularly in the regions where so many alien-born exist."

Recommendations: "1. That medical inspection of schools and homes be established. 2. That medical inspection of alien employees be undertaken. 3. The introduction of a bill into the next legislature, declaring trachoma a disease requiring quarantine, such quarantine to be at the discretion of the proper medical authorities. 4. The subsequent introduction, in the same legislature, of a bill to establish a State trachoma hospital in or near Philadelphia. . . . 5. That this committee be continued, with power to act in carrying out the above recommendations."

POSEY, William Campbell and McKENZIE, Robert Tait. Results of the examination of students' eyes in the Department of physical education, University of Pennsylvania. American medical association. Journal, 48: 1010-13, March 23, 1907. figs.

Examination of 863 students, by "the ophthalmologist of the department . . . nine physicians, all trained ophthalmologists, and his assistants in various hospital services. . . .

"With the various classes divided into squads, these gentlemen prepared a short sketch of the ocular history of each student . . . regarding the existence of any known visual defect, headaches, ocular pain or fatigue after studying, or other symptoms which might be of ocular origin. Special inquiry was made regarding the wearing of glasses. . . . After these facts had been recorded on a card . . . the student passed to another assistant, who determined the range of accommodation and the degree of visual acuity . . . by the Snellen type. Another examiner then noted the external configuration of the eyes and the presence of any inflammatory condition or anomaly in their movements. On the com-

pletion of these tests the student entered a dark room, where . . . the ophthalmologist to the department carefully estimated . . . the state of the refraction and studied the condition of the interior of each eye.

"Of this total, 14.70 per cent were . . . myopic, while the remaining 85.30 per cent were either hypermetropic or emmetropic. Among 633 students in the two lower classes, 87.26 per cent were hypermetropic and 12.75 per cent were myopic, while of 261 students in the upper classes, 80.25 per cent were hypermetropic and 19.75 were myopic.

"Five per cent more of myopia was found in the professional department in scholars of a similar age than in the college department. . . . The average age of all . . . was 21.4 years, and the statistics showed an increase of about 2.5 per cent of myopia for each year during the four years of college life.

"Six hundred and nine had full visual acuity in each eye, 94 in but one eye, while 180 had subnormal vision in both. Three hundred and three students wore glasses; of these, 217 were hypermetropic and 86 myopic. Eighty-seven complained of headache. Of this number, 47 wore glasses and 40 did not. Of those complaining of headache, 7.59 per cent had subnormal vision, while the remaining 92.41 per cent had full visual acuity. . . .

"Of the 833 students examined, 58, or 6.68 per cent, had spinal curvature or scoliosis, and this condition was found 48 times among hypertropes and 10 times among myopes. Of the total number of students with spinal curvature, this vision of one eye was perceptibly lower than its fellow in 13.79 per cent. . . .

"As weak eyes are often associated with a physical condition which is below par, suitable exercise of a general nature is . . . insisted on for those who are so handicapped. . . . Violent exercises are forbidden myopes, and the endeavor is made in this class of subjects particularly to develop the chest and to impart a correct standing posture for the avoidance of scoliosis."

WESSELS, Lewis O. The standing in class of children with defective vision. Teacher, 16: 299-300, December 1912. chart.

The work of the Municipal eye dispensary, Department of public health and charities of Philadelphia.

There were examined for eye defects, "in the past four years, 5,146 children; . . . 3,695 or 72 per cent were backward, due principally to their defective vision, as the majority . . . started to progress after receiving proper glasses.

"The following table graphically shows the ages and grades of the children refracted at the Municipal eye dispensary.

Ages and grades of children.

Grade.	Age of pupils.												Above normal average age.	
	6	7	8	9	10	11	12	13	14	15	16	Total.		
8.....								8	12	7	6	33	No.	Per c.
7.....							7	21	30	10	1	69	13	40
6.....					1	16	54	82	39	10	3	205	31	53
5.....					1	39	112	183	141	55	21	552	400	72
4.....				56	196	235	264	224	69	15	1	1,060	808	76
3.....		1	83	213	291	279	227	135	47	17	1	1,204	997	77
2.....	1	68	246	278	276	150	110	62	36	8	1	1,236	921	74
1.....	134	182	160	90	60	37	19	11	7	1	6	707	391	55
Total.....	135	261	499	638	863	829	864	684	285	89	19	5,146	3,695	72
Above normal			100	368	627	701	803	655	273	89	19	3,695		
Average age per-			32	57	73	85	93	96	97	100	100	72		
centage.....														

Figures on the broken lines represent the position of the normal average school child.

"There are many interesting features connected with this table that are worthy of study. The 3,695 backward children represent a collective or a composite loss of 8,434 years or a money loss of \$295,190, based on the actual cost of education, \$35 per annum in Philadelphia. The cost to the child was considerably more.

"1,170, or 23 per cent, were in the average grades, and only 281, or 5 per cent, were above the average grades.

"The majority of the children were below the fourth grade; 4,297, or over 83 per cent, were below the fifth grade; only 1,909, or 37 per cent, were above the third grade; only 849, or 16.5 per cent, were above the fourth grade; only 297, or 5.76 per cent, were above the fifth grade; only 92, or 1.78 per cent, were above the sixth grade; only 33, or 0.64 per cent, were above the seventh grade."

TENNESSEE.

MINOR, James L. Some impressions of certain eye affections in the negro, as compared with the white race. *Ophthalmology*, 7: 36-38, October 1910.

Examination of the eyes of 1,849 negro, and 3,181 white pupils of the public schools of Memphis, Tenn. Results showed that refractive errors were just one-half as frequent in the negro as in the white pupils; proportion of normally seeing blacks $2\frac{1}{2}$ times greater than whites; badly seeing negroes 1 to 15, badly-seeing whites 1 to 6; omitting uncorrected myopic whites, badly seeing whites were 1 to 10; no case of myopia found in the negroes.

UTAH.

BATES, Edgar. Eye strain among public school children. *Ophthalmology*, 8: 188-92, January 1912. chart.

Of two schools of Ogden, Utah, 890 were examined for eye defects. Those suffering from eyestrain, sufficient for glasses, numbered 184, of whom 134 complained of headaches; 57 of blurring words; 20 of sensory symptoms, as "smarting"; 21 of frequent lachrymation; 2 of seeing double; 3 of dizziness; 2 of spots before the eyes; 11 of difficulty of reading from blackboard; 17 of blepharitis; 17 of scales at roots of eyelashes.

"The question is not settled even with the wearing of appropriate lenses. It is really a question of preventive medicine . . . the question as to the necessity of medical examination of all public school children."

MEDICAL INSPECTION OF TEETH—DENTAL CLINICS.

GENERAL REFERENCES.

CORLEY, J. P. Oral hygiene. Inauguration of the present movement. *Dental Cosmos*, 52: 1117-20, October 1910.

Describes the work of the National dental association's oral hygiene committee, which was commissioned to go into the public schools of the land and instruct the teachers and pupils in the care of the teeth and mouth. The writer says: "We undertook to put the work into cooperation of the dentists throughout the land; and . . . sent letters . . . to men who were conspicuous in their associations and asked if they would go into the public schools and present the matter to teachers and pupils, but we found that not one man out of ten would volunteer to do so. . . ."

"The general plan consisted, first, of having dental inspection made in the schools throughout the land Many of the State associations have volunteered to do this. A triple chart record of the conditions which they find is to be made, one to be given to the National association's committee, one to the school board, and the third to the child, to be taken home to his parents. These charts show the actual conditions of the mouth.

"The examinations which have been made so far show that between 66 and 97 per cent of the mouths of school children need dental attention.

"After the inspection is made, the next thing is to establish a free course of lectures There are three sets of lectures—one for children, one for mothers, and one for the general public. After these lectures, free dental clinics are established where all children of the indigent poor can have free dental attention.

"The National committee has placed in my hands, as chairman of the southern branch hygiene committee, some funds, together with three clinical equipments to be used in this territory. These cost from \$750 to \$1,000 each, and consist of a complete dental office outfit Material is furnished, and to each child is given a tooth-brush and a package of dentifrice, and shown how to use the same."

GALLIE, D. M. The time, the place, and the work. *Dental review*, 25: 563-74, June 1911.

List of cities giving attention to school children's teeth: p. 566. Results of a questionnaire.

MCCREARY, J. P. Dental inspection of public school children—the need of education of the masses along dental lines. *South Carolina medical association. Journal*, 6: 457-61, September 1910.

"The child's health, mental and physical, is a national asset Nothing can stop the adoption of dental inspection. It must come."

The writer says it is estimated that 4 children only in 100 have good teeth. "These estimates and statistics are alarming. A wise plan . . . would be to give these facts the widest publicity possible. This can be accomplished by (1) lectures, (2) pamphlets, (3) through newspapers, (4) examination of children's teeth in the schools."

National dental association—Southern branch. Report of committee on oral hygiene. *Dental cosmos*, 52: 1103-05, October 1910.

Chairman, J. P. Corley.

"Our committee proposed to establish hygiene headquarters in one representative city, in as many of the cities in the southern territory as we could reach . . . To this end the chairman was commissioned to visit these cities and endeavor to get the local societies to undertake the work of organizing their cities after the Cleveland plan.¹ This plan consists in making a dental inspection of all the public schools, delivering a course of lectures in the schools, and establishing and maintaining a free dental clinic where all the children of the indigent poor who are public school pupils can have free dental service. . . .

"It is the intention of the committee to submit at the Denver meeting, a plan whereby every section of the country can be effectively and systematically reached with the gospel of oral hygiene."

WOODRUFF, Clinton Rogers. The city and the children's teeth. *American city*, 6: 479-81, February 1912.

Philadelphia's school dental clinic, city hall, has one chair; opened in October, 1910. More than 3,500 children were treated during its first year. Newark dentists maintain 2 dental chairs. Rochester, N. Y., dispensary was maintained in a public school, treating in one year, 1,700 children. New York City has 18 clinics distributed through the 5 boroughs; of these, 3 are maintained by the Children's aid society and the others are connected with general dispensaries or dental colleges. In recent examination of 400,000 pupils, New York City schools, it was found that nearly 300,000 needed dental treatment.

IN REPRESENTATIVE CITIES.

CONNECTICUT.

WATERBURY. Board of education. Inspection of teeth. *In its Annual report*, January 1, 1910-January 1, 1911. p. 17-21. tables (of eight public schools)

Began in June, 1910, by the Waterbury dental society, systematic inspection of teeth of all public school children of Waterbury.

Summary: Grades 2-9.

Total pupils.....	3,736
Condition of mouth.....(good).....	2,007
Do.....(bad).....	1,735
Condition of gums.....(good).....	2,906
Do.....(bad).....	853
Use of brush.....(yes).....	1,646
Do.....(no).....	2,100
Teeth filled.....(yes).....	589
Mal-occlusion.....(yes).....	1,679
Teeth decayed.....	19,912

($\frac{1}{2}$ per cent to each pupil.)

ILLINOIS.

East St. Louis. Board of education. Dental inspection. *In its Annual report*, 1910-11. p. 48-52.

The East St. Louis dental society, through its committee on oral hygiene and prophylaxis, reports its initial examination of 4,796 white children, and 432 colored.

Rules and requirements for examination (p. 49-51):

"First. Men must report at schools at 8 a. m. that they may get ready for the work before school opens, it being necessary to explain to the teacher what we expect and how they can aid you.

"Second. Each examiner must have an assistant to help keep records and care for instruments.

"Third. Each examiner must provide the following: (1) Only three mouth mirrors. (2) Two pairs pliers and lead pencil. (3) Cotton holder and cotton. (4) One alcohol lamp for warming mirrors for use. (Dries off alcohol and also prevents condensation of breath.) (5) Two glass tumblers, one for carbolic solution and the other for alcohol. (6) One dish for soap and water for scrubbing mirrors. (7) One cake of toilet soap. (8) Towels and napkins. (9) Carbolic acid and alcohol. (Furnished by the board.) (10) Files will be furnished for filing blanks when finished by assistant. (By the board.)

"Fourth. Examinations must be made by mirror only.

"Fifth. No examination with explorers will be permitted.

"Sixth. In marking the records, follow the chart.

"Seventh. If fair, mark the letter 'F'; if in bad condition, mark the letter 'B'. Mark same for the condition of the gums. If they use toothbrush, the word 'yes' or 'no'.

"Eighth. In marking diagram, start at upper right hand side of mouth, which corresponds with No. 1 of the permanent teeth and letter 'A' of the deciduous teeth. If cavity is found, simply draw a

¹ See under Medical inspection of teeth and dental clinics.

line through teeth on the chart. If two or three cavities are found, draw a line through teeth lines through teeth on the chart.

"Ninth. Instruments must be cleaned in soap and water, and immersed in carbolic solution until needed; then dip in alcohol bath and pass through flame of lamp to dry and warm, but not hot enough to burn the child's mouth.

"Tenth. The blanks are to be placed in the hands of all children when starting work, for them to fill in name, age, school, and grade."

Number of white children examined.....	4,796
Those having brush.....	45 per cent.. 2,196
Not having brush.....	55 per cent.. 2,600
General condition of mouth:	
Good.....	36 per cent.. 1,683
Bad.....	11 per cent.. 547
Fair.....	56 per cent.. 2,568
Teeth needing cleaning.....	75 per cent.. 3,531
Irregular.....	18½ per cent.. 893
Previous attention.....	7 per cent.. 336
Permanent teeth extracted.....	102
Teeth needing attention.....	10,913
Temporary teeth needing extraction.....	1,816

A number of Hutchinson teeth, teeth with erosion, cleft palate, bad tonsils, and adenoids.

Lincoln School.

Number of colored children examined.....	432
Those having brush.....	30 per cent.. 132
Not having brush.....	70 per cent.. 300
General condition of mouth:	
Good.....	26 per cent.. 100
Bad.....	20 per cent.. 96
Fair.....	55 per cent.. 234
Teeth needing cleaning.....	85 per cent.. 384
Irregular.....	63 per cent..
Teeth needing attention.....	1,276
Permanent teeth extracted.....	31
Temporary teeth needing extraction.....	113
Hutchinson teeth.....	13

INDIANA.

NESBIT, Otis B. Dental inspection at Valparaiso, Indiana. Oral hygiene, February 1911. figs. tables.

Reprinted.

Inspection of kindergarten, grade, and high school pupils, made by the dentists without compensation. Results were tabulated. A dental hygiene exhibit was installed in each school. The dentists put the teeth of children of one grade in condition, free, for those unable to pay.

TABLE 3.—Showing number of cavities in permanent teeth and teeth in which they occur.

Age.	Total.	6	7	8	9	10	11	12	13	14	15	16	17	18	19	22
First molar.....	1,389	36	40	127	159	166	151	113	142	149	99	91	62	33	11	1
Second molar.....	564	.....	.....	.....	.....	2	10	23	77	96	106	115	79	40	18	1
Third molar.....	14	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	2	7	4
Incisors.....	239	.....	8	5	8	24	21	30	55	49	44	26	17	3	.....	.....
Bicusps.....	329	.....	1	4	9	4	4	17	43	49	51	58	45	29	5	.....
Cusps.....	23	.....	.....	.....	.....	.....	.....	.....	.....	4	2	10	6	10	2	.....

By the middle of December, "The latest teachers' reports show that, of 772 pupils, 268 have had all work finished; 123 are being treated now, but their work is not completed. When it is, 411 pupils, or 53 per cent, will have hygienic mouths, and there are five school months yet to come."

NOTE:—The following is of interest regarding Dr. Nesbit's experimental work:

Scarlet fever and dental hygiene in Valparaiso, Ind. Indiana State board of health. Monthly bulletin, 15: 32, March, 1912.

During the epidemic of scarlet fever in Valparaiso, Ind., Dr. Otis B. Nesbit undertook to control its spread by the care of the school children's mouths and teeth; inspection was made without pay by the local dentists. In 976 mouths inspected, 4,796 cavities were found; 2,197 in the temporary teeth, 2,579

in the permanent, and but 116 of the 976 pupils, free from decayed teeth. The cleaning of the mouths of the school children was followed by a subsidence of the epidemic and a notable improvement in efficiency and general health. Work for teeth free to pupils too poor to make payment.

MASSACHUSETTS.

Boston. The Forsyth dental infirmary for children. Washington, The International congress for hygiene and demography, September 1912. [Boston, Massachusetts, The Wood, Clarke press] n. p. illus. tables. plans. 8°.

Founded by John Hamilton Forsyth and Thomas Alexander Forsyth, in memory of their brothers. Incorporated, 1910, by a special act of legislature; it "represents the first attempt on adequate scale to satisfy the requirements" [of the acute dental needs of children]. "It will offer opportunity to all deserving children under the age of 16 to obtain freely expert advice and care for their mouths. . . . Its functions will include not only care of the teeth, but also related oral conditions, including defective palates, adenoids, etc. . . . It will have to do in great part with the prevention of defects by oral prophylaxis. . . . It is expected to furnish valuable practical teaching in oral hygiene. . . . A research fellowship has been established."

Brookline. School committee. [Work done in dental hygiene during the year 1910] *In its Report for the year ending December 31, 1910.* p. 32-34.

Pupils of primary and grammar schools, Brookline, Mass. An increase of 12 per cent in the number of mouths rated in good condition, and a decrease in number of mouths rated in poor condition, of 30 per cent as compared with the first examination held January 28, 1907 (Dr. W. M. Potter).

KEYES, Frederick A. Institutional dentistry. Methods. Results. Boston medical and surgical journal, 167: 118-20, July 25, 1912. tables.

Dr. Keyes was requested by the Mother Superior of St. Vincent's orphan asylum, Boston, in November, 1910, to establish a dental infirmary for the care of the children's teeth. Two children were installed as assistants, a great aid in inspiring confidence in the children needing treatment. Monthly lectures were given to the upper grade children, in the schoolroom, and they were required to write compositions after lectures, as aid to the hygienic teachings. Morning and evening tooth drill was instituted, prize given to child with cleanest mouth at end of month, separate brushes and tooth powder placed in cabinet containing 250 compartments. These were inspected monthly. Every three months the children were lined up and inspected by the dentist, a separate mouth stick being used for each child—just taking two hours to inspect the children in this manner.

The following statistical table shows the "relation of oral prophylaxis to infectious diseases:

Record of infectious diseases in St. Vincent's Asylum.

	1907-8	1908-9	1908-Nov., 1910	Nov., 1910- Apr., 1911	Apr., 1911- May, 1912
Diphtheria.....	6	3	1	0	0
Mumps.....	8	3	10	4	0
Scarlet fever.....	17	8	12	3	0
Pneumonia.....	3	5	4	6	0
Measles.....	24	50	40	25	0
Tonsillitis.....	19	16	8	3	0
Whooping cough.....	7	2	2	0	0
Chicken pox.....	15	17	10	6	0
Typhoid.....	0	0	0	0	0
Croup.....	4	0	0	0	0
Spinal meningitis.....	0	0	0	0	0
Scarletina.....			0	0	0
Bright's disease (acute).....					0
Hemorrhage.....					0
Tuberculosis of eye.....					1
Tuberculosis of lungs.....					1
Total.....	103	103	87	52	2

"In the year 1905-6 the home was in quarantine for over three months—an epidemic of scarlet fever of over 75 cases.

"A comparison . . . will show that in six months after work was begun . . . the ratio of infectious diseases was reduced 59 per cent; and that in the subsequent year this ratio was reduced to approximately 2 per cent. . . .

"Is this absolute elimination of disease for a period of twelve months a coincidence? It may be so. . . . But certainly no such condition ever existed in St. Vincent's asylum prior to the installation of a dental infirmary."

MICHIGAN.

BUNTING, Russell W. Report of the examination of the mouths of 1,500 school children in the public schools of Ann Arbor, Michigan. Dental cosmos, 51: 310-22, March 1909. tables.

A report of examination made in 1906, 1907, for the compilation of various dental statistics in connection with anthropological measurements made upon the same children by Dr. Robert Bean. Examinations were made of 1,525 children, from 5 to 17 years of age. Two kinds of records were taken, a dental chart and an anthropological chart.

"From the data thus collected we endeavored to ascertain whether or not there were any correlations between the child's physical or mental development and the time of eruption of the teeth or the amount of dental caries present; also whether the caries and the teeth eruption were influenced by the type of the individual."

The distribution in the mouth of the 2,068 carious teeth noted (negroes omitted) is shown, there being in the lower jaw 1,167 cases of caries as against 901 in the upper jaw; "in the lower right first molar, 10 per cent of the number erupted at 6 years of age were found to be carious. The percentages steadily increase . . . until in the sixteenth year there are in the upper jaw from 35 to 40 per cent of carious first molars . . . more than one in every three examined, and in the lower jaw the same tooth at that age has 70 per cent affected, or two out of every three examined. . . .

"The upper incisors show a steady increase in their percentage of caries from the eleventh to the sixteenth year, and at the latter age the centrals have the very high percentage of 35, while the laterals show about half that number. The lower incisors exhibit but little caries at any of the ages examined.

"In the bicuspsids there appears to be decided advance in the number decayed between the fifteenth and the sixteenth year, and the upper bicuspsids at all ages exhibit about twice as many cases of caries as are found in the same teeth in the lower jaw.

"The canine is seldom decayed in either upper or lower jaw, but the second molar at the age of 16 has between 20 and 30 per cent of the total number affected by caries."

A special study of the 60 negro children of Ann Arbor, and the 112 negro children and 61 white children of Detroit, was made. In the whites, 9.2 per cent of the teeth erupted were decayed; in the negroes, 6.2 per cent.

Percentage of caries in the various types.

Types.	Boys.	Girls.
Blondes.....	8.1	6.6
Intermediates.....	7.5	11.7
Brunettes.....	7.7	9.2
Negroes.....	2.3	1.4

Other tables are: Stature weight in relation to eruption: Boys, girls. Stature weight in relation to caries: Boys, girls. Brain weight in relation to eruption: Boys, girls. Brain weight in relation to caries: Boys, girls.

Teeth of girls erupt earlier than boys. In both sexes, individuals large for their age have more teeth present than the undersized or normal. The increase in the caries of the large children over that of the small is so marked, that it is probable there is some cause other than the presence of more teeth.

A great many children with large heads, who were said to be very advanced mentally, were found upon examination, often with mouths full of caries and irregularities. There were 142 cases of malocclusion; 18 cases of very badly developed teeth, and between 30 and 40 cases showing pits or grooves in the incisors and bicuspsids.

NEW YORK.

BARLOW, Peter C. Free dental clinic for children in the city of New York. Oral hygiene, 1: 859-62, November 1911.

Out of 266,426 children examined during 1910, in the public schools, 94,630 were found to have defective temporary teeth, while 66,620 had more or less serious defects of the permanent teeth. Over 20,000 cases have been treated.

FAIRCHILD, Beatrice C. The origin, history and progress of some of the dental clinics in New York City. Items of interest, 32:524-29, July 1910.

Prominent dental clinics are the St. Bartholomew's, Children's aid society, Industrial school, and Sullivan street school. At 449 East One hundred and twenty-first street, January 15, 1916, was inaugurated the first free dental clinic for public school children in the city of New York. Up to the present time the work is confined to public schools Nos. 39, 159, and 78.

KNOFF, Siegmund Adolphus. Dental hygiene for the pupils of public schools. New York medical journal, 96: 617-21, September 28, 1912. tables.

Reprinted.

A report on the facilities offered by New York public dispensaries for the dental care of school children. Letter sent to superintendents of the 34 important general and special dispensaries, asked four questions as follows:

- "1. Does your dispensary have a dental department?
- "2. If so, how many dental surgeons are in attendance, and for how many hours a week and at what time are they engaged in giving their services?
- "3. Do the patients have to pay for the material for filling teeth, etc., or is it given gratuitously?
- "4. If there is no dental service attached to your dispensary, would you be willing to establish one and arrange special hours for school children so that the time for visiting the dispensary may not conflict with school hours?"

The 33 answers appear in full in the report, of which the following is a summary:

Have dental facilities.....	15
Have no dental facilities.....	18
Are willing to establish dental department.....	8
Are unwilling or unable to establish one.....	9
Have asked for suggestions with a view to establishing one.....	2
Do only extracting.....	2
Do also filling.....	5
Do work gratuitously, or charge those able to pay.....	7
Charge for material used.....	8
Have hours suitable for school children.....	7
Have hours unsuitable.....	7
Are willing to increase or change hours.....	6
Are unwilling or unable to change hours.....	2

To the report comprising sixteen dispensaries independent or attached to hospitals, we must add that there exist three dental clinics maintained by the Children's aid society, kept fully employed with the care of the teeth of the children attending the society's schools. There is also one free dental clinic, being the health department's institution.

Rochester. Board of education. [Dental clinic established in the school building no. 14, by the Rochester dental association] *In its Report, 1908-1910.* p. 21, 22, 73.

In operation since February 23, 1910; probably the only school dental clinic in the world, in a school building. For the benefit of children of parents unable to pay for dental work. Permission granted to the society to open a second dispensary at school No. 26.

OHIO.

Cleveland. Board of education. [Report of the oral hygiene experiment made in the Marion school] *In its Official proceedings, February 27, 1911.* p. 44-59.

See also p. 42-43.

Reports of the oral hygiene committee of the National dental association, and others.

"With 97 per cent of the public school children in need of care and treatment, and with the worst oral conditions showing an improvement of from $3\frac{1}{2}$ to 50 per cent in working efficiency, would it not be conservative to consider that with all . . . the mouths in good first class condition that there might be an average increase of at least 10 per cent in working efficiency for all the children in the schools? . . .

"The records of 1909 and 1910 show a registration of practically 65,000 pupils in the elementary schools and . . . we would show an expenditure of \$170,626 a year to educate children handicapped by faulty oral conditions; but, in making the above estimate, our committees placed their percentage at a figure which they are positive is less than half of what actual tests would show. And, if we double the above amount we find that we are spending \$341,250 per year to overcome the handicap of faulty oral conditions."

See also: Tabulations of the effect of dental care on the mental powers of the dental class, in Marion school, Cleveland, Ohio. Dental brief, 16: 779-782, October 1911.

EBERSOLE, W. G. A school "educational campaign" for oral hygiene of the National dental association.

Abstract of a lecture.

Abstract in American school board journal, 41:17, 18, 32, 34-35, 38, November 1910. Report form.

"In the public school, our educational system proposes, first, to make a cursory examination of each child, sending into the home a record of that examination, and bringing the parent or guardian a knowledge of a faulty oral condition. . . .

"The second step . . . is to put into the schools, when the examiner has finished and the parents and pupils are prepared for them, a system of lectures which explains the purpose, use, care and treatment of the mouth.

"Third . . . is the establishment of the dental clinic . . . to make possible the securing of data which will show the value of the healthy oral conditions as related to the working efficiency of the child from the economic side of the question . . . from the school reports of the pupils, preceding and following treatment."

In the Cleveland, Ohio, Marion school, an experimental class was formed, of 40 boys and girls selected as having the worst oral conditions of all the pupils. Their school records for the six months preceding the test were taken, two psychological tests made before we began our work; the children furnished with toothbrush and powder and a dental nurse placed over them. Test meals given, the teeth all treated and filled, and a \$5 gold piece offered as prize to each child faithfully carrying through the conditions of the test. Two psychological tests will be made during the time of test; and two will be made during the six months following treatment, with the school records, "and from these records it is expected to secure evidence which will show the value of dental service in dollars and cents."

NOTE:—For results, see following references.

Report of scientific experiments conducted in the Cleveland public schools for the purpose of ascertaining the value of healthy conditions of the mouth. Experiments conducted under the auspices of the National dental association, the Ohio State dental society, the Cleveland dental society and the Cleveland board of education. Cleveland, Ohio, Published and distributed by the National mouth hygiene association, April 1, 1912. 35 p. illus. tables. 8°.

Chairman of Oral hygiene committee of the National dental association, W. G. Eberole, M. D.

In June 1909, 10 dentists and 10 nurses or attendants, began the inspection of the mouth conditions of the 846 children of the Marion school, Cleveland; out of the 846, but 3 were found to have teeth in perfect condition. Out of the entire number of dental charts, 40 were selected, as representing the worst mouth conditions, for the experiment. (1) They were to have their teeth put into perfect condition. (2) They were to brush their teeth carefully three times a day. (3) They were to masticate their food properly, not using liquid with solid food. (4) They were to attend any and every meeting of the class called and to conform to regulations laid down.

In mental efficiency the children made gain of 99.8 per cent shown by psychological tests, one given in May, one in June, one in August and one in September, 1910; last two given on the 4th and 10th of May 1911. Longest time spent on one phase of the work during a test, was less than three minutes. The children who needed the improvement most were the ones who made the greatest gains.

Individual records given.

WALLIN, John Edward Wallace. Experimental oral euthenics: An attempt objectively to measure the relation between community mouth hygiene and the intellectual efficiency and educational progress of elementary school children. Dental cosmos, 54: 404-13, 545-66, April, May 1912. tables. graphs.

Reprinted.

"The conclusion is strongly suggested that the desirability of establishing dental clinics in the public schools, for free inspection and treatment, should present itself to the taxpayer as a plain business proposition; . . . the paying of proper dividends on the capital invested in the schools. . . .

"We started out with a class of retardates and repeaters. During the experimental year only one of the 27 pupils failed of promotion. According to the best estimates there are 6,000,000 retardates (pupils over age for their grades) in the public schools of the United States. . . . About one-sixth are repeaters (pupils who must spend more than one year in one grade). It costs the country annually \$27,000,000 to educate every sixth child over again; i. e., a second, third, or fourth time in the same grade. (Ayres)

"During the experimental year not a single truancy card was made out to these 27 pupils. . . . On the psychological side, the class showed an improvement . . . which amounted on the average to about 80 per cent. That a large part of this increased efficiency was directly due to the mouth orthogenics is attested by the parallel pedagogical improvement made by the pupils. . . . An efficiency improvement of 10 per cent . . . would amount to one school year in ten . . . and in the aggregate would save millions of dollars annually to the taxpayer."

WALLIN, John Edward Wallace. Experimental oral orthogenics: An experimental investigation of the effects of dental treatment on mental efficiency. Journal of philosophy, psychology and scientific methods, 9: 290-98, May 23, 1912.

The Cleveland experiment annotated elsewhere.

PENNSYLVANIA.

HARRER, W. F. Oral conditions in children as causative factors in disease. Dental cosmos, 51: 196-200, February 1909.

Examination of 247 public school children, Montoursville, Pa. Of 51, ages 6 and 7 years, but 8 had absolutely perfect first permanent molars. Of a total of 1,036 deciduous and permanent teeth, 436 were

defective; in 25 children the number of defective teeth exceeded the intact teeth; 8 children used toothbrush daily, and 4, occasionally.

In the 86 children, ages 8 to 11 years, of a total of 1,781 teeth, 627 were carious; about 1 pupil out of every 7 used the toothbrush daily.

In the 110 children, ages 11 to 15 years, of a total of 2,616 teeth, 636 were defective; toothbrush used occasionally by the majority of the children. In 25 of them, from 2 to 4 first permanent molars were decayed beyond help; 15 had good first permanent molars, nearly all filled, as well as the full number of teeth for their respective ages.

Those children whose deciduous teeth had received attention, showed healthy mouths, and "as far as could be learned, they possessed keen mental development. . . .

"In the children examined a number gave evidence of toxic infections. They were pale, listless, apathetic, gave a history of headache, and were unable to cope with their studies. In some pupils . . . from 1 to 3 years behind their proper grade, actually repulsive conditions of the mouth existed. These unfortunates were being deprived of their measure of education, besides endangering the health of the school by reason of their susceptibility to infectious disease."

McCULLOUGH, Piercy B. The Southwark school dental dispensary. Teacher, 16: 133-35, May 1912. illus.

Opened, January 22, 1912, a "municipally operated dental dispensary" in the school. The volunteer organization of dentists, rendering service for 15 months at the city hall (opened, Oct. 5, 1910) were succeeded on January 1, 1912, by a paid corps of eight legally qualified dentists, each serving one-half of every working day.

[Pittsburgh] Dental and oral hygiene in our public schools. Pittsburgh school bulletin, 3:24-25, May 1910.

Of the 732 children examined in two public schools, 9 mouths found in good condition; 2,909 diseased teeth; 3 children who used toothbrushes.

Reading. Board of education. Dental inspection. *In its* Annual report, 1910-1911. p. 11-12.

The Reading dental society, 1910, detailed 25 of its members for the inspection—8,925 pupils being examined. Less than 3 per cent were found to have perfect teeth, only 4,849 had ever used a toothbrush, but 1,369 had ever been to a dentist, and 1,064 had had permanent teeth extracted. Permanent teeth cavities to the number of 28,548 were found.

In 18 months the free clinic treated the teeth of 275 pupils.

The Reading free dental dispensary is the first reported in the State of Pennsylvania.

Work of the Reading dental society, operating successfully for three years, a free dental dispensary. Examination was made of the mouths of the first grade public school children, with results as follows:

Number examined	2,010
Green stain	1,436
Gums abnormal	93
Mouth breathers	140
Cavities in permanent teeth	2,907
Number of putrescent pulps	1,162
Number of exposed pulps	580
Use of toothbrush	796

(Tables with letter from Dr. H. W. Bohn, dated August 21, 1912, U. S. Bureau of education, Division of school hygiene and sanitation.)

SCHLEGEL, George S. The Reading free dental dispensary. Psychological clinic, 3: 249-54, February 15, 1910.

Organised by the Reading dental society, the first man reporting for duty on June 2, 1909. In less than five months, with two of unavoidable delay, the Free dental dispensary was founded, equipped and paid for. Equipment is modern in every particular. The patients are received through the Associated charities, from the public schools, and the general public, the teachers being provided with blanks to be filled out by them for school children. Hours, 9 to 12; 2 to 5; Saturday afternoons excepted.

Dental inspection to begin in the public schools with the September session, 1910.

PHILIPPINE ISLANDS.

OTTOFY, Louis. Dental clinics in Manila: Schools, prison hospital, and orphanage. Dental cosmos, 52: 887-93, August 1910. tables.

Bibliography: p. 893 (of author's own papers and reports)

First free dental clinic in Manila, January 1904 (Report in Fourth international dental congress. Transactions, 1904) maintained in connection with St. Luke's hospital.

The school clinic, begun January 10, 1910, "is conducted absolutely without cost to the pupils and the school authorities. . . . The work is commenced at half-past seven or eight in the morning, when

I enter a schoolroom and ask the teacher to request all the children who have the toothache to rise. . . . These go to the operating room and are attended to. . . .

"The reports of the work as it progresses are daily brought to me by the assistant, who occupies a vacant room in the school building, and who operates from 7.30 until 12, and sometimes until 1 o'clock.

"All these clinics, except the one in the schools—and that lives by reason of the others—are connected in violation of law, but . . . under a provisional sanction. . . . I have made repeated efforts since 1908 to have the law amended so that (at first) such clinics might be established, and (since 1905) when they were established, that they might continue—but without success. . . . The donations to the clinic are valued at about \$900. . . . My own services are given without remuneration. . . . The hospital gives quarters to the clinic free of rent."

See also Dental cosmos, October 1911 and November 1912.

Philippine general hospital is establishing a dental clinic to be in charge of author.

RHODE ISLAND.

COLTON, James O. The dental condition of children in the Providence public schools. *Dental cosmos*, 51: 876-80, July 1909.

"Of 1308 children examined, 1161, or 96.6 per cent had decayed teeth and 557 or 46.3 per cent had suffered from aching teeth within two weeks. . . . In the technical high school, where 100 young men were examined, 96 were found to have decayed teeth. . . . Of the 1308 examined, only 19.2 per cent used a toothbrush at least once a day; 37.7 per cent used a brush not less than once a week but not as often as once a day, and 43.1 per cent never used a toothbrush.

"Believing that nervous diseases and lowered vitality (due to abnormal oral conditions) contribute to a low standard of scholarship, I visited the ungraded rooms at the Benefit Street and the Chalkstone Avenue primary schools and there examined 39. . . . I found that every child had decayed teeth ranging in number from one to ten; 23 had aching teeth; 19 had been disturbed while sleeping by aching teeth within two weeks, and 14 could not eat without pain from carious teeth.

"I believe . . . there are over 27,000 public school children (in Providence) in need of immediate attention, and if 46.3 per cent of the public school children are suffering from toothache, there are 13,000 whose nerve condition is abnormal and who cannot reasonably be expected to attain a satisfactory standard of scholarship."

Providence. School committee. [Report of the Dental inspector] *In its Proceedings* no. 40 [Series E] February 23, 1912. p. 434-35.

The first year's work, ending January 26.

An examination of 4,418 children, "of whom 4,131, or 93 per cent, were found to have decayed teeth; 299, or 6.5 per cent, had sound teeth; 1,063, or 24.5 per cent, were found with aching teeth. Only 189 children out of 4,418, or 4.3 per cent, had received dental treatment previous to the examination. As a result of the examination and recommendation to the parents, 1,000 children, or nearly 24.4 per cent of all those whose teeth needed attention, have received 3,430 dental treatments—an average of over three treatments to each child."

THE SCHOOL NURSE.

GENERAL REFERENCES.

ALLPORT, Frank. The school nurse. *American academy of medicine. Bulletin*, 13: 145-50, June 1912.

"It is, of course, desirable that each nurse shall have but few schools to care for, in order that individual necessities shall be relieved in the best manner possible. No nurse should have under her care more than 1,000 pupils, indeed, one nurse can hardly care for more than one school and do her work satisfactorily, and I greatly question whether even this is not too much labor to expect of any one woman.

"This opinion can perhaps be better understood, if an effort is made to acquire some idea of the multitudinous duties of the average school nurse. In the first place she shall act as first assistant to the medical inspector, and shall always be in attendance when he makes his visits to the school. By observation and consultation with the teachers, she finds sick and ailing children and submits them to the inspector. The carrying out of the inspector's orders is placed in her hands, whether this is done at the school, home, or hospital. Many cases of skin diseases, lice, filthiness, etc., are cared for at the school by the school nurse, under orders from the medical inspector, and in schools possessing bath tanks, etc., they are operated under the supervision of the school nurse. One of the principal functions of the school nurse is to see that the doctor's orders are carried out. The doctor may diagnose and prescribe, but unless his advice is followed his work is useless. This important duty is performed by the school nurse. It must be remembered that many public school children are poor children, whose parents are either busy, negligent, impoverished, dissipated or ignorant. They probably have no money with which to purchase medicines, appliances, glasses, medical, surgical and hospital services, etc., and all these things the school

nurse undertakes to supply by drawing upon the resources of charitable funds, charitable people, charitable hospitals and charitable doctors. These poor people are sometimes apparently devoid of energy, and have to be cared for with but little confidence in their intelligence. The school nurse then has to secure the medicine and see that it is properly administered. Cleanliness, bathing, properly prepared food, sanitation, ventilation, plumbing and warmth come under her supervision. She takes children to doctor's offices, dispensaries, hospitals, etc., and sees that they get home again. She carries out the doctor's orders at home, such as giving medicines, syringing ears, using eye-drops, making surgical dressings, etc., she cooperates and works with the truant officer in keeping children in school. In short, through her assistance the doctor is able to prescribe or operate with the confident feeling that . . . his directions will be followed as far as is humanly possible by the already over-worked school nurse, in cooperation with her equally praiseworthy but overburdened sister, the visiting nurse of the district. Before these commendable institutions came into existence thousands of able operations were virtually thrown to the winds by poor post-operative attendance, and enormous stores of good medical advice nullified by neglect and improper living. The school and visiting nurse have become, then, the element which has transformed doubtful results into reasonably certain good results.

"The school nurse not only comes into contact with the school child, but also naturally and inevitably mingles with the school child's family, and here she performs a most important function, not only to the child, but to the family and to the community as well. By calling upon the family to look after the welfare of the school child, she and the district visiting nurse, if necessary, will endeavor to educate the family to ideas of cleanliness, honesty, sobriety, industry, kindness, cooking, ventilation, infant welfare, etc., in all of which departments of proper living there is abundant opportunity for missionary work among the thickly populated tenement districts of our large cities. This is a department of charity which, unfortunately, will never be overdone, and the extent of its usefulness is only outlined by the amount of money that is eligible for the purpose. I believe there is no charity which furnishes such extensive results for the money subscribed as the visiting and school nurse, and no object for which people may so safely and blindly contribute financial support as the one under consideration; every dollar given helps to make individuals and communities better, healthier and happier."

CARLEY, Margaret E. The school nurse as a link in the chain of preventive medicine. In *American school hygiene association. Proceedings, 1912.* Springfield [Mass.] American physical education review, 1912. p. 33-40. table. insert.

Contains an outline of a plan for the development of school nurses' work, prepared by the writer, Dr. Carley, Department of hygiene, Boston public schools.

CORNELL, Walter Stewart. The nurse as a municipal officer. *Psychological clinic*, 4: 181-88, December 15, 1910.

Reprinted with some omissions and some new paragraphs and nurses' records in His Health and medical inspection of school children . . . 1912. p. 82-87. Title: The school nurse.

Article is chiefly the work accomplished in Philadelphia.

"There is no question as to the value and propriety of the nurse's services in treating minor skin diseases of a contagious character. . . .

"It is a fact, however, that the major portion of the nurse's work in the school building has come to be the treatment of minor cuts, bruises, and infections. . . . This relief so freely and so gracefully given is in reality dispensary work. . . .

"The chief business of the nurse is (a) to shorten or obviate the period of exclusion from school of children suffering from minor contagious diseases, and (b) to secure the correction of physical defects by reason of personal interview with the parents. . . . A certain proportion of the nurse's work as at present carried on is unnecessary and, therefore, an extravagance. Thousands of bruises and scratches are 'treated' which are so trifling and superficial that the act is a travesty on medicine. . . .

"Similarly, the 'treatment' of pediculosis, recorded as almost a third of the nurse's work, is seldom actual treatment at all. It is simply advice. Probably not 1 case in 20 requires a home visit and not 1 case in 50 an actual head scrubbing."

Doctor Cornell says further:

"The results of the school nurse's work are remarkable. Contrasting the work of the medical inspector working without a nurse with that of an inspector working with a nurse, the economy . . . in employing the nurse is easily manifest."

See regarding New York City, p. 76, of the book.

"There are 261 nurses employed in the division of child hygiene of the department of health, [New York City] and there are 55 additional nurses employed for five months during the summer, working from the 1st of May until the 1st of October.

"There are, however, a number of nurses employed in the division of communicable diseases and the division of contagious diseases of this department." (Excerpt from letter, dated Aug. 19, 1912, signed by John J. Cronin, M. D., assistant and acting director of child hygiene, to U. S. Bureau of education. Division of school hygiene)

STEWART, Isabel M. and NUTTING, M. Adelaide. The educational value of the nurse in the public school. In National society for the study of education. Ninth yearbook. Chicago, Illinois, The University of Chicago press [1911] Part 2: 14-60.

Bibliography: p. 72-76.

"There is increasing accumulation of school functions relating to health. These may be cited briefly:

"(a) Sanitary inspection of school buildings, systems of ventilation, etc., with special attention to the daily cleaning and the disinfection of schoolrooms and lavatories.

"(b) Medical inspection for detection of contagious diseases and physical defects.

"(c) Personal health examination.

"(d) Hygiene of instruction.

"(e) Emergency service and treatment of minor chronic complaints.

"(f) Instruction of children in personal, home, and community hygiene and sanitation, and the practical application of the laws of health.

"(g) Instruction of, and cooperation with, parents.

"(h) Physical education."

Historical sketch of school nursing in New York City, and elsewhere, following the London work. In 1908, New York, \$30,000 appropriation was made to extend the school nurse service and put it on a definite basis. This provided a staff of 27 nurses at \$900 per year. These nurses attended 188 local and 4 parochial schools; since then, the staff has been increased to 141 nurses, including supervisors, all giving their entire time to the work.

Los Angeles was the second city to adopt the system; the work begun by the Visiting nurse society and taken over by the city, 3 nurses being appointed for 80 schools; begun in San Francisco in 1904 by the nurses' settlement, in 1908 was established with staff of 5 nurses. In 1908, Philadelphia Board of Education appointed 6 nurses.

The functions of the school nurse are as follows:

"(a) Assistant to the school doctor in his visits of inspection—preparing children for examination, recording data, testing vision, hearing, etc.

"(b) Routine daily, weekly, or monthly inspection in classrooms.

"(c) Keeping of records, sending out reports to parents, cards to principals, etc.

"(d) Treatment of routine cases in the school—bathing eyes, irrigating ears, dressing wounds, etc.

"(e) Emergency service—caring for accidents, fainting, convulsions, etc.

"(f) Instruction of children in personal hygiene and sanitation—practical demonstrations and talks.

"(g) Follow-up work in the homes—notifying physicians, instruction of mothers in the care of children, taking children to dispensaries, dental clinics, etc., for treatment, when necessary.

"(h) Sanitary inspection of homes—discovering and reporting contagious diseases to board of health.

"(i) Reporting of trummy cases.

"(j) Teachers' and mothers' meetings.

"(k) Summer work in prevention of infant mortality—playground supervision, fresh-air excursions, etc.

"In no one system are all these functions incorporated. . . . The staff of nurses is usually so entirely inadequate that only the most needy and pressing cases can be attended to. . . .

"The need now is for an institution or organization that will give the preparation required. . . . The one significant attempt to meet this problem is that undertaken by Teachers college at Columbia university, . . . a one-year course under the control of the department of nursing and health. . . . Its distinct aim is to prepare 'teacher nurses.' . . . A high-school certificate, or its equivalent, and a diploma from a recognized training school for nurses are required for entrance."

WATERS, Yessabella. Municipalities employing public school nurses. In her Visiting nursing in the United States . . . New York, Charities publication committee, 1909. p. 367 (Table V)

Municipalities employing public school nurses.

	Estab- lished.	Number of nurses.
California:		
Berkeley board of education	1909	1
Los Angeles board of health	1903	4
San Francisco department of health	1906	4
Colorado, Pueblo department of education	1909	1
Georgia, Atlanta department of education	1909	1
Illinois, Chicago department of health	1908	41
Iowa, Des Moines board of education	1906	2
Maryland, Baltimore department of health	1906	5
Massachusetts:		
Boston department of education	1905	24
Brookline department of education	1909	1
Cambridge department of health	1907	1
Michigan:		
Detroit board of health	1906	2
Grand Rapids board of education	1906	3
New Jersey:		
Jersey City board of health	1907	2
Orange board of education	1906	2
New York:		
New York department of health	1902	141
Syracuse board of health	1908	2
Ohio:		
Cincinnati board of health	1909	2
Cleveland board of education	1908	2
Oregon, Portland, city of Portland	1908	1
Pennsylvania:		
Harrisburg board of education	1908	1
Philadelphia board of education	1908	6
Washington:		
Seattle board of education	1908	2
Tacoma board of education	1908	1

WOOD, Thomas Denison *and others*. The nurse in education. Chicago, Ill., University of Chicago press [1911] 76 p. 8°. (National society for the study of education. Ninth yearbook. Part 2)

Bibliography: p. 72-76.

See also The educational value of the nurse in the public school, p. 14-60 (Stewart, Isabel M. and Nutting, M. Adelaide) The professional training of children's nurses, p. 61-71 (Read, Mary L.)

IN REPRESENTATIVE CITIES.

BROOKLINE, MASS.

LEWIS, Ida M. [The school nurse system of Brookline, Mass.] *In* Brookline, Mass. School committee. Report for the year ending December 31, 1910. p. 34-36.

A plan for the daily visiting of schools, homes, or dispensaries, establishing the school-nursing system, begun January 4, 1909. Number of eye glasses procured, 49; operations for adenoids and enlarged tonsils, 48; other operations, 5; cases treated at dental infirmaries, 297; number of dressings for relief of impetigo, discharging glands, and wounds, 285.

CHICAGO, ILL.

Chicago. Department of health. Rules and instructions for school nurses.

"1. The hours for work for nurses are from 8.30 a. m. to 5 p. m. with time off for luncheon.

"2. Nurses will visit schools and make routine inspections of hair, eyes, skin, and throats of pupils, and find out from the school inspector's record cards the names and addresses of pupils excluded on account of some contagious disease and those found defective who have been advised to seek treatment.

"3. The nurse will refer all cases except pediculosis to the school medical inspector for diagnosis and disposal. A list is to be left for the medical inspector each day.

"4. A failure on the part of the medical inspector to make a diagnosis on his next visit should be reported to the health department.

"5. Treat no case until diagnosis is made.

"6. Emergency treatment as for cuts, burns, or skin wounds may be treated once by the nurse if necessary, and the parents then advised to continue treatment, or have the child placed in care of a doctor.

"7. Children with marked physical defects, such as those requiring glasses, or suffering from enlarged tonsils, adenoids, or nervous diseases, who have been advised by the medical inspector to seek medical advice, will be visited by the nurse at their homes, and in case treatment has not been begun will advise medical attention. Treatment for favus, scabies, and pediculosis can be advised or administered by the nurse at the home.

"8. Where operation or treatment is indicated and the family not able to pay for treatment, the child's father or mother should go to a free dispensary or hospital with the child. If not possible for them to do so, the nurse can accompany the child if the parents give a written request that she may do so. Nurses may visit homes of those reported absent from school on account of sickness, but must not enter the home if a contagious disease is found."

Instructions for treating minor contagious diseases follow—"provided the parents are not able to employ a doctor or fail to place the child under treatment."

WOODRUFF, Thomas A. The value of the nurse in the public schools. American academy of medicine. Bulletin, 10: 527-33, October, 1909, tables.

Also in American school board journal, 41: 4, 22, November 1910.

In Chicago, where the history of school nursing dates back some eight years, before school nursing was thought of elsewhere in the United States, a small group of workers from the Visiting nurses association were delegated by request of the city school to four special schools. The work grew so rapidly that in the spring of 1906, the nurses found themselves with more than 75 schools on their regular visiting list.

In October, 1906, when the health department of Chicago decided to put on school nurses, the Visiting nurses' association proffered its services. It donated ten of its best nurses to supervise and direct the ten school districts into which the city is divided. It was able to furnish in 48 hours 30 nurses.

The school nurses are under the joint supervision of the department of health and the Visiting nurses' association. They are paid by the city. Each has charge of a certain number of schools. She visits these schools each day.

A summary of the benefits derived from work of the school nurse shows:

"1. A decrease in the spread of contagion by a close observation of the children . . . and the supervision of all excluded cases in their homes. 2. They teach the parents, family, and children cleanliness and personal hygiene. 3. They instruct the mother in the care of her children and impress upon her the benefits to be derived from cleanliness, fresh air, and right living. 4. They render more effective the efforts of the medical inspector by visiting the homes of the children and reporting back information of the conditions found there. 5. They frequently find cases of deprivation and disease in the home which would otherwise go undiscovered, and the work of the medical inspector would be of little advantage in the school. 6. They make it possible to treat cases of minor ailments in school."

DETROIT, MICH.

KIEFER, Guy L. The school nurse as an aid to medical inspection of schools. American journal of public hygiene, 20: 279-81, June 1910.

The school-nurse work in Detroit. Two nurses granted in 1909, one added in 1910; each attends four schools daily. During the past year the two nurses made 1,189 visits to the schools and 2,723 home visits. Gave personal attention and such treatment as was possible at the school clinic in 4,661 different instances, and took 158 children to free clinics for treatment. Of the 461 cases of physical defects 299, or a little over 60 per cent, were corrected. Of these 461 cases, 152 had defective eyesight. Of the cases of physical defects not followed up by the nurses, only about 20 per cent received attention.

PHILADELPHIA, PA.

NEWMAYER, S. W. Evidence that the school nurse pays. In American school hygiene association. Proceedings, 1911. Springfield, Mass. American physical education review, 1911, p. 44-51, tables.

Also in New York medical journal, 93: 718-21, April 15, 1911. Reprinted.

Report of the work of the school nurses of Philadelphia for the year ending December 31, 1910.

CITY OF PHILADELPHIA.

Results obtained by a medical inspector when not aided by a nurse.

[Number of individual children reported upon, 751.]

Cases needing treatment reported upon as terminated.		Results reported.			
		Action.		No action.	
Kind.	Number.	Number.	Percentage.	Number.	Percentage.
Defective vision.....	272	70	25.8	202	74.8
Hypertrophied tonsils.....	338	62	18.4	276	81.6
Adenoids.....	36	5	13.9	31	86.1
Defective teeth.....	153	31	20.4	121	79.6
Total.....	798	168	21.1	630	78.9

Results obtained during the same period by the same medical inspector when aided by a school nurse.

[Number of individual children reported upon, 704.]

Cases needing treatment reported upon as terminated.		Results reported.			
		Action.		No action.	
Kind.	Number.	Number.	Percentage.	Number.	Percentage.
Defective vision.....	441	355	80.5	86	19.5
Hypertrophied tonsils.....	104	68	65.4	36	34.6
Adenoids.....	62	45	72.6	17	27.4
Defective teeth.....	150	138	92.0	12	8.0
Total.....	757	606	80.0	151	20.0

Results obtained by medical inspector aided by a nurse.

School.	Nurse.	Recommendations.			Per cent acted upon.
		Number.	Acted upon.	Not acted upon.	
1.....	Nurse.....	324	262	62	80.86
2.....	do.....	445	434	66	97.53
3.....	do.....	320	282	38	88.12
4.....	do.....	265	226	39	85.28
	Total.....	1,354	1,204	150	88.9

Results obtained by medical inspector not aided by a nurse.

School.	Nurse.	Recommendations.			Per cent acted upon.
		Number.	Acted upon.	Not acted upon.	
5.....	None.....	283	83	200	29.32
6.....	do.....	582	152	430	26.12
7.....	do.....	441	94	347	21.31
8.....	do.....	474	91	383	19.2
Total.....		1,780	420	1,360	23.6

Schools.....	39
Nurses.....	9
Old cases.....	42,899
New cases.....	16,341
Cases cured.....	19,989
Visits to schools.....	5,108
Visits to home (old).....	3,096
Visits to home (new).....	1,923

Total number of visits to homes..... 5,024

Visits to dispensary (old).....	3,139
Visits to dispensary (new).....	2,007

Total visits to dispensary..... 5,146

School consultations (parents).....	754
School consultations (pupils).....	2,687

Total school consultations..... 3,441

Examinations for uncleanness.....	30,099
Examinations for bureau of municipal research.....	737

NEWMAYER, S. W. A practical system of medical inspection with trained nurses, adapted for public schools of large cities. *New York medical journal*, 87: 637-39, April 4, 1908. forms.

Reprinted.

Discusses the medical inspection system devised by Dr. Newmayer for use in Philadelphia schools. The chief factors considered were:

- "1. The elimination of useless clerical work.
- "2. Methods which would secure cooperation between medical inspector, nurse, principal and teacher, and parents.
- "3. The unnecessary exclusion of pupils, and, when excluded, their return in the shortest possible time.
- "4. Each party concerned assumes his or her share of the responsibilities, and errors can easily be traced to their source.
- "5. Records and reports are few and can readily be referred to for practical purposes."

Philadelphia. Superintendent of public schools. School nurses. *In his Annual report*, year ending December 31, 1910. p. 44-45. table.

"The nurse teaches both the pupils and the parents the value of practical hygiene and accomplishes results. She thus becomes . . . an invaluable adjunct to medical inspection."

Record of results in schools where nurses are employed as compared with schools without nurses. A comparative study by the Department of health and charities.

SCHOOLS HAVING NURSES.

Schools.	Recommendations.		Per cent acted upon.
	Number.	Acted upon.	
James Forten.....	324	262	80.9
Wharton.....	445	434	97.5
Catto.....	330	282	85.1
Wood.....	265	226	85.3
Total.....	1,364	1,204	88.9

SCHOOLS WITHOUT NURSES.

McDaniel.....	283	83	29.3
Lynd.....	582	152	26.1
Wyoming.....	441	94	21.3
Reynolds.....	474	91	19.2
Total.....	1,780	420	23.6

ST. LOUIS, MO.

St. Louis. Board of education. Department of school hygiene. *In its Annual report*, year ending June 30, 1911. p. 141-48.

At the beginning of the year, a corps of six nurses was added to the Department. Duties and lines along which their work was carried on:

"1. To assist inspector of hygiene in his examinations and to carry out his instructions.

"2. To keep records of children examined, making special notes as to what treatment has been obtained.

"3. To examine all absentees returning to school before they enter rooms, with a view of detecting evidence of infectious or contagious diseases, excluding or holding children in suitable quarters for further examination by inspector of hygiene.

"4. To visit homes of all excluded children or children whose parents do not respond to repeated notices from the inspector of hygiene of the existence of some physical defects, which materially impedes the child's progress in school.

"5. To interview and advise parents, getting information of the social and hygienic conditions of the home of pupils incorrigible or morally weak, suggesting proper clothing, food and cleanliness.

"6. Advising parents or guardians of the need of certain medical or surgical treatment, also advising them where the free medical and dental clinics are, also where the free childrens hospitals are located.

"7. When the time will permit, they can make eye and ear tests of children selected by the inspector of hygiene.

"8. To be responsible for the personal hygiene and cleanliness of all children under their care.

"9. To observe the matter of ventilation, light, heat, and proper seating of children, and bring to the attention of the principal and supervisor of hygiene.

"10. To assist in caring for children who are in need of emergency medical or surgical treatment while in school, having an emergency chest at her disposal.

"11. To assist principals, teachers and inspectors in determining the matter of unfitness or fatigue among the school children, especially in the matter of physical training.

"12. Their visits to the homes of excluded and sick, absent children will be the direct means of having them returned to school at the very earliest possible moment."

Nurse record blanks, p. 143-46. Other blanks, p. 147, 149.

Summary of district nurses' reports.

Visits to homes of pupils.....	1,580
Visits to hospitals.....	55
Visits to clinics.....	984
Operations secured through visits.....	263
Fitted with glasses through visits.....	191
Emergency attentions at school.....	1,003
Dental treatments.....	196

TRAINING OF MEDICAL INSPECTORS, SCHOOL NURSES,
AND SCHOOL TEACHERS.

American academy of medicine. Report of Committee for teaching preventive medicine in universities and normal schools. *Its Bulletin*, 13: 20-22, February 1912.

Chairman, Henry B. Hemenway.

A preliminary report.

"Preventive medicine is not taught in a thorough manner by most medical schools. Very few hours are devoted to this branch in the advised curriculum. . . .

Secondly, there are few competent to take positions as professors of public health in universities. . . . At the University of Wisconsin, under . . . Prof. Ravenel, a course in public health has been inaugurated. Columbia and Cornell universities and the Massachusetts Institute of technology are doing the same. Judging from results, the Massachusetts Institute of technology is today giving better instruc-

tion in this line than any medical school in America." The Harris lecturer at the Northwestern university for 1912 will be Dr. Milton J. Rosenau.

Discussion: p. 22-23.

BURNETT, James. The teaching of school hygiene. Medical record, 79: 711-12, April 22, 1911.

Courses of instruction before a candidate for diploma in school hygiene is admitted to examination, in: "1. Practical instruction in children's diseases (three months). 2. Examination of the eye, ear, nose, and throat (three months). 3. School hygiene, as outlined above (six months), the course to include practical examination of school children under a specially recognised teacher."

The diploma would require but a year's additional special training. "If such a diploma were instituted, and satisfactory instruction given in school hygiene, the standard of the school physician would be raised."

DITMAN, Norman Edward. Education and its economic value in the field of preventive medicine. The need for a School of sanitary science and public health. Columbia university quarterly, 10, June 1908, supplement. 70 p. diagrs. map. tables. (Appendix I, II)

Bibliography: p. 69-70. Reprinted.

A school of preventive medicine should be planned to give instruction to the following groups: 1. Students preparing for the practice of medicine. 2. Students preparing for offices of health boards and sanitary inspectors. 3. Students preparing for sanitary engineering—civil, military and naval. 4. Students preparing for work as school and college teachers, school nurses and school inspectors. 5. Students preparing for work as officers of charity societies and institutions, visiting nurses and "social workers." 6. Students preparing for the ministry. 7. Students preparing for the work of legislators. 8. The public.

Subjects of instruction proposed for school nurses and school teachers.

Conditions concerned in the causation and occurrences of disease in individuals, groups of individuals, and communities.

+ Modes of transmission, portals of infection, geographical and seasonal distribution of transmissible and epidemic diseases, and the approved methods of prevention of these and other diseases.

+ Legal aspects of methods of isolation, quarantine, medical and sanitary inspection, compulsory vaccination and inoculation, school attendance, notification, and of methods for preventing the transmission of communicable and epidemic diseases.

+ The liquor problem; insanity, pauperism and crime dependent on disease and intemperance.

+ American social conditions (including immigration, the growth and concentration of population in cities, with the attendant dangers).

+ Sanitary legislation and organization.

Principles of relief; organized charities.

Social and moral prophylaxis.

+ Diseases of animals transmissible to man; relation of insects to disease.

+ Hygiene of the child and the adult, the school and the tenement house, hygiene of ventilating, heating, atmospheric pollutions, and their influence on health and disease.

+ Theory and practice of physical education.

+ Correction of conditions which interfere with the physical welfare of school children.

+ Social and vital statistics.

+ Adulterated and unwholesome food; markets, bakeries, hotels, restaurants, infected food, ice, canned goods and water supplies.

+ Dairy products; milk, etc.; inspection of herds and dairies; use of tuberculin test, pasteurization, milk analysis and laws.

* Dangerous occupations and preventable accidents.

+ Excursions for sick children, fresh air funds, visiting nursing, etc.

+ Sanitary museum exhibits (see Park's Museum catalogue).

Compiler's note: Cross mark (+) indicates subjects included in training of school inspectors; to which author adds: Medical and sanitary inspection.

Subjects marked with a star (*) may be omitted in training of school teachers; to which training the author adds:

Municipal, State, and National Government.

Municipal sanitation: (1) Pollution of water and ice supplies, methods of purification and relation to health and disease. (2) Construction of reservoirs, filtration plants, sewage and water systems; methods of sewage and refuse disposal; street cleaning. (3) Public baths, parks, and comfort stations. (4) Public nuisances, offensive trades, smoke, stables, noises and filth.

FORCE, John Nivison. Standardization of the health and development requirement. California. State board of health. Monthly bulletin, 5: 190-91, February 1910.

Medical inspectors in California.

"At the last session of the legislature a bill was passed authorizing school boards 'to establish health and development supervision in the public schools of this State.' The law further provides that the examining staff for health and development supervision shall consist of persons holding a life diploma of the high school or grammar grade, and persons holding a certificate to practice medicine and surgery.

In addition persons so qualified must have a health and development certificate issued by county boards of education on presentation of a 'recommendation from the State board of education certifying special fitness for the work.' The law provides no standard of requirement by which the State board of education shall act in determining 'special fitness,' and the suggestion has been made that in choosing the medical members of the staff, the endorsement of the candidate by his county medical association be secured by the State board of education. This is a most excellent idea as an additional safeguard with regard to medical fitness, but takes no account of the 'special fitness' desirable in dealing with problems of the public health. . . . The following is an attempt to suggest a plan of procedure which will serve to standardize this requirement.

"Recommendations from the State board of education certifying special fitness for health and development supervision in the public schools of this State will be granted only to:

"(a) Persons certified by the University of California or other institution of like standing as having completed a course in hygiene covering the following subjects:

"1. *Sanitary engineering.* Elementary knowledge of the construction and sanitation of water supplies, the disposal of sewage and sewerage systems, and the disposal of refuse.

"2. *Sanitary architecture.* The plumbing, lighting, heating, and ventilation of buildings.

"3. *Food inspection.* The sanitation of the meat, milk, vegetable, and grocery supply and the detection of adulterants.

"4. *Personal hygiene.* The essentials of personal hygiene including anthropometry and the prescription of exercise.

"5. *Vital statistics.* The application of statistical methods to the conservation of the public health.

"6. *Epidemiology.* The hygiene of transmissible diseases.

"7. *Sanitary law.* The health laws of the State, the school laws of the State, and the Federal laws designed to conserve the public health.

"(b) Persons otherwise qualified, passing an examination in the above mentioned topics to be given by the State board of health.

"The examination mentioned in section (b) could be given either by the State board of education, by the State board of health, by the State board of medical examiners, or by the State board of examiners for registration of nurses appointed by the regents of the university."

KROOME, Arthur. A report on the teaching and practice of hygiene in the public normal schools of the United States. *Journal of educational psychology*, 2: 429-39, October 1911. tables.

Questionnaire sent to 191 of the 203 most important normal schools listed in v. 1 of the Bureau of education report for 1909, elicited returns from 84. "Exactly one-half of the 84 heard from offer no hygiene courses aside from the hygiene given with physiology or incidentally in courses on school management, methods of classes, psychology, etc." Nine schools give neither physiology nor hygiene, and only one school attempts to train special teachers of hygiene.

HILL, David Spence. The cooperation of educational and of medical departments of American universities. *In American school hygiene association. Proceedings*, 1912. Springfield [Mass.] American physical education review, 1912. p. 136-51. tables.

Aids in Science, n. s. 26: 647-59, November 15, 1912. Title: The need of practical cooperation of educational and of medical departments in modern universities.

Reprinted.

Questionnaire sent to medical colleges and departments embraces the following questions:

"I. (a) What courses intended specifically for teachers or prospective teachers are being offered by your medical department? (b) Duration of courses? (c) Number enrolled this year? (d) Any certificate or diploma awarded for completion of same by teachers or prospective teachers?

"II. (a) What courses in pedagogy are offered by your department of pedagogy or education for the benefit of physicians or medical students or nurses who are or intend to become inspectors of schools? (b) Duration of courses? (c) Number enrolled this year? (d) Any certificate or diploma awarded for completion of same by physicians, medical students or nurses?

"III. Please write any other relevant information or practical suggestion regarding possible need for cooperation between medical and pedagogical departments."

Of the 112 inquiries sent to the medical colleges, 69 responses were received; of the 160 sent to departments and schools of education, 106 responses were received.

Most of the responses from medical colleges indicate: "No work whatever for the benefit of prospective teachers"; from educational departments, "no work especially intended for medical inspectors, school nurses or school sanitarians"; from medical and from educational departments of certain universities, "no active affiliation reported." Scarcely half a dozen universities report a reasonably effective scheme for cooperation of medical and educational departments. The cooperation of trained workers in the medico-pedagogical field has gained headway against difficulties. . . .

"1. With reference to the need of the schools, provisions should be made for senior medical students, and especially for graduates, in the educational department for instruction and training in the essentials of pedagogy. . . . In basal study of psychology of common interest to teacher and physician, the

majority of medical students obtain no systematic training whatever . . . since, according to Flaxner's report,¹ half or more of the medical schools require less than a good high school course for admission. . . .

"Medical students who undertake the work in pedagogy as prospective school inspectors or school physicians should undertake the extra training either in a graduate year or elect a minimum during the senior year of the medical course. . . .

"2. Appropriate courses in education should be offered prospective school nurses.

"3. The college student who desires to become a specialist in school hygiene or a public sanitarian may omit the regular medical course and proceed from the bachelor's degree to the doctor of philosophy in hygiene or to the new degree of doctor of public health . . . candidates for the bachelor of arts in education should be permitted to follow hygiene as a major subject, extending through at least three years. . . . In the courses in hygiene, preventive medicine, physiology and psychiatry, the medical department may be utilized. . . .

"4. In the study of the school problems of elimination, retardation, repeating, and of the exceptional child, the department of education should lead. The educational laboratory and pathological clinic, an adjunct to the laboratory of psychology, is one point for concentration of effort upon these problems, by cooperation of psychologist, physician, sociologist, and teacher."

KOBER, George M. Hygiene and dietetics. American academy of medicine. Bulletin, 11: 779-86, December 1910.

Outlines lectures for a course intended to give to students such knowledge "as may enable them to differentiate between wholesome articles of food and drink. . . . The examination of air in rooms, the velocity, condition and quality of air currents are considered. . . . The organic analyses of water and its various forms of pollution, together with the examination of soils."

Under "List of lectures" are: The alcohol and tobacco question. Importance of good teeth. House sanitation. Lighting. Hygiene of schools—Medical inspection of school children and the prevention of permanent disabilities in childhood. Social and moral prophylaxis.

LANKFORD, J. S. The public school and the prevention of tuberculosis. Texas State journal of medicine, 5: 403-405, March 1910.

Reprinted.

"A careful study of tuberculosis should be made a part of the curriculum of every school, beginning at the fourth grade and extending through the grammar school. . . .

"First. It is the duty of the officials to see that buildings are located on ample grounds and in airy places, so far as possible; that the premises are kept clean and sanitary; that the buildings are arranged to the best advantage for heating, lighting and ventilation, that extremes may be avoided; that seats are adjustable and that everything is done to protect children from disease and to promote good health and development. The course of study . . . should be . . . lightened; the mental strain should be relieved and more attention given to the physical side of life. . . .

"Second in importance is the health and preparation of the teacher. She must be free from tuberculosis . . . [and] must be deeply impressed that the prevention of tuberculosis stands first in any system of education. . . . She should have a keen insight into the general condition of her pupils, as well as a wide scope of information concerning illness. . . . She should urge that every practice promoting general health in school life is carried out.

"Third. Practical courses of instruction should follow this equipment."

PALMER, George Thomas. The short-comings of municipal public health administration. American city, 5: 64-68, August 1911.

"In but seven of the [44 Illinois] cities have the health officers been permitted to serve sufficiently long to become thoroughly conversant with the sanitary requirements of the city or to work out sanitary and public health reforms. In 15 cities changes have been made every two years, and in six . . . every year."

ROSENAU, Milton Joseph. The department of preventive medicine and hygiene and the new degree of doctor of public health. Boston medical and surgical journal, 166: 886-87, June 13, 1912.

Course authorized by the faculty of medicine on June 22, 1910, by Harvard university president and fellows, leading to the degree Dr. P. H.

"While candidates for the degree of doctor of public health are advised first to take the medical courses, the medical degree is not a prerequisite. Those who desire to specialize in sanitary engineering, sanitary architecture, sanitary chemistry, vital statistics or other branches of public health work may receive the degree after four years of work following the bachelor's degree. . . . In any case a minimum of one year of residence is required."

¹ Flaxner, Abraham. Medical education in the United States and Canada; a Report . . . New York City 1909 340 p. maps. tables. 8". (Carnegie foundation for the advancement of teaching. Bulletin, no. 4)

BUCKER, William Colby. The making of a health officer. *California State journal of medicine*, 9: 155-56, April 1911.

The course to be "offered by the Oakland (California) college of medicine will cover one year and . . . will include general and personal hygiene, sanitary engineering, especial stress being laid on the collection, storage, purification and delivery of water, and the collection, purification and disposal of sewage; theoretical plumbing; sanitary architecture; sanitary law, bacteriology, parasitology including medical entomology, sanitary chemistry and food inspection.

Discussion: p. 156-58.

SHIPLEY, Alfred E. Training for public health. *New York medical journal*, 93: 985-87, May 20, 1911.

"Training for public health service involves the preparation of physicians and of nurses. . . . Such a course should include:

"Hygiene studied from public, semipublic, and personal standpoints. Public hygiene includes municipal, State, and Federal hygiene. . . . State hygiene attends to the health affairs of towns and rural communities. . . . Municipal hygiene . . . will require the services of a vast number of medical men. . . . Consideration must be given to sewage, garbage, cleanliness of streets, water supply, food supply, sanitation of dwellings, including ventilation, lighting and plumbing, air pollution, transmissible diseases, and child hygiene.

"School hygiene is developing very rapidly, its phases already being so many that it should have the entire time service of medical men.

"In the proper consideration, therefore, of the many problems arising in the field of preventive medicine, social, industrial, economic, and medical factors must be given their due proportions."

SMALL, Willard S. School hygiene in the training of teachers: The organizing principle. *In American school hygiene association. Proceedings*, 1910. Springfield [Mass.] American physical education review, 1910. p. 124-31.

Also in *American physical education review*, 18: 586-92, November 1910; and in *Atlantic educational journal*, 6: 5-6, 40, September 1910.

"Health as an end in education requires that the various factors of the school life and environment shall be adequately understood. . . .

"The three factors I have chosen as illustrative examples, would be acknowledged . . . as of essential importance.

"1. *Ventilation.* The point of attack is the relation between air and life. This should be a matter of intimate knowledge on the part of teachers. As a matter of fact, this relation is little understood. . . .

"2. *Eye hygiene.* . . . The development of the eye must be understood. The specific strains and degenerations to which each important part is liable must be made clear. . . . The principles of lighting . . . the vicious effects of improper position; the dangers of too prolonged near work and of home study; improper methods in writing. . . . Above all, it is essential that there should be a thorough study of the hygiene of reading and definition of the hygienic requirements for text books. . . .

"3. *Physical defects.* . . . The statistics of retardation show relatively little retardation associated with visual defects, whereas the common defects . . . e. g., adenoids, enlarged tonsils, are attended by a relatively large amount of retardation. The same is true of defective hearing. . . . Such defects inevitably mean retardation and perversion of development in the ordinary school environment. . . . Teachers in training should study the more important physical defects—their physiological character, their specific effects upon psycho-physical development, their relations to school practices and conditions, and their remedies or alleviations."

STEWART, Elsa. Sex hygiene. 9 p. 8°. (Cheney, Washington. Department of school hygiene. Bulletin H., no. 1, Sept. 27, 1911)

The Washington State board of education passed resolution, in January 1911, making sex hygiene a part of the curriculum of the State normal schools.

The course was first given at the Cheney State normal, summer session 1911. Frequent bulletins are to be sent out, detailing the plan and progress of the work.

The course "is concerned first with the primary principles of biology, (a) protoplasm, (b) life, (c) the cell theory, (d) germ cells and their life cycle; 2d, the evolution of sex; 3d, human reproduction presenting the (a) anatomical and (b) physiological phases briefly, (c) embryological development touching upon prenatal influences, (d) birth; 4th, the phenomena of adolescence physical and psychical, the boy and girl problem and its solution, adolescent reading and amusements; 5th, the pathology of sex onanism among school children, causation and treatment, social diseases and the social evil. This phase of the subject will be treated briefly . . . 6th, sociological aspects of sex, (a) recognized social conventions, what they are for and their meaning, (b) the nature and obligations of the family and the sanctity of the home, (c) the centripetal tendencies of family life against the centrifugal tendencies of industrial life, (d) studies of the theories of inheritance and environment, (e) eugenics, (f) infant mortality, causes and preventions, (g) race suicide and the duties of educators in the preservation of the race."

TERMAN, Lewis M. Professional training for child hygiene. Popular science monthly, 80: 289-97, March 1912.

"The situation may be summed up in a sentence: *The physician's training does not qualify him for the many sided task of adapting the program and environment of the school to the health and growth needs of the pupil.* The main purpose of this article is to suggest tentatively . . . some of the more important lines of professional preparation necessary for those who are to work in any field of child hygiene in the public schools.

"Educational hygiene has four chief aspects: (1) 'Medical Inspection,' including routine examinations for physical defects and consequent follow-up service; (2) supervision of physical training, including free play, gymnastics, and athletic sports; and (3) child psychology, including clinical work with mentally and morally atypical children, the hygiene of instruction, etc.; (4) researches in school heating, lighting, ventilation, seating, sanitation and other externals affecting the health of the child. Each of these divisions has of course its logical subdivisions but as only the very largest cities could employ a more specialized staff than this scheme calls for it is unnecessary to carry the classification further. On the other hand, the majority of school health officers will probably for some years to come have to serve more or less in all these capacities. Assuming, however, the four separate lines of specialization above designated let us examine the general and special courses of study which would be necessary for their successful pursuit.

"To begin with, it would seem that the time requirement could not reasonably be placed below seven years in addition to a four year high school course. This corresponds to the usual allotment for the doctorate of philosophy and to that for the doctorate of medicine in our sixteen best medical schools. Using the seven-year basis for our calculation, the course falls naturally into three divisions. The first three years would be given to regular college work in which the elements of physics, chemistry, biology, physiology, psychology, pedology, sociology and at least one modern language would be taught. The next three years would be ample time in which to give all that is needful for the school health officer out of the present medical curriculum, besides leaving a fair margin for collateral work in psychology, pedology, and the technical aspects of education. The last year would be reserved for carefully supervised clinical practice in the public schools. Proof of ability to read both French and German should be required a year before the end of the course, for most of the important researches in school hygiene are in these languages.

"Physicians will of course object to the time allotment for the second division. How, they will ask, can you condense a medical course into three years, to say nothing of a margin to be left for psychology and pedology? The answer is more in terms of elimination than of condensation. Pharmacology, materia medica and therapeutics can be discarded in a lump, with a consequent saving of a full half year. Doing the same for the obstetrics, gynecology and most of the surgery effects a further saving of three-quarters of a year. This makes a year and a quarter off the present medical course. Further, for the purpose here in question, minor savings could be effected in several subjects, as, for example, anatomy, in which the minimum of 400 hours required by the best medical schools could here be taken for the maximum. Finally, the additional year of clinical experience in the schools would take the place of most of the usual courses in the hospital and dispensary, so that almost half of the second three years would be left for psychology, pedology, education, sociology, school hygiene, gymnastic sports, etc., the amount of each being dependent upon the student's choice among the four special lines above named: medical inspection, clinical child psychology, physical training and school sanitation. Throughout the course time would be saved and effectiveness promoted by never losing sight of the professional nature of the courses. Physiology, pathology and bacteriology, as well as psychology and sociology, would have to be taught in their relations to the ultimate work to be done, not as so many unitary and complete sciences. Even the first three years ought to be conscious of the professional end.

"A school health officer, the product of such a school, would be of far greater service to education than is the usual school physician and would probably be worth more to society in the long run than a dozen well-trained practitioners. At least one such specialist in child hygiene is needed for every 2,000 school children. California needs 200, the United States at least 7,000. What university will be the first to undertake their production?"

WHIPPLE, Guy Montrose. The instruction of teachers in school hygiene. Pedagogical seminary, 17: 44-50, March 1910.

Status of the teaching of school hygiene to teachers: Course outlines; time needed.

WINSLOW, Charles Edward Amory. The rôle of the visiting nurse in the campaign for public health. American journal of nursing, 11: 909-20, August 1911.

Establishment and value of school-nurse work; and the service in homes, teaching "public health."

"Most hospital training schools are not prepared to meet these new needs. . . . It is absurd to attempt to train the nurses . . . for the public health campaign by a course which involves two or three hours a week of theory and 50 or 60 hours in the wards, not hours of clinical instruction, but for the most part a routine of unenlightening and exhausting manual work. . . .

"The instructive visiting nurse in the public health campaign . . . must have a sound grasp of the biological principles which underlie her work so that she ought to have as good a grounding as the medical man in the fundamentals of physiology and bacteriology and hygiene; and . . . she must be ac-

quainted with the broad outlines of sanitation and sociology. . . . We may emphasize as necessary the provision of special graduate instruction for nurses specializing in these various lines."

WITMER, Lightner. Clinical psychology and the professional training of teachers (and others interested in child welfare) *In his* The special class for backward children. . . Philadelphia, The Psychological clinic press, 1911. p. 262-75.

See also under The teaching of health and hygiene. Meylan, George L. Report of the committee, 1910.

SALARIES OF SCHOOL MEDICAL INSPECTORS.

AYRES, Leonard P. Salaries of medical inspectors in America and in England. *Journal of education*, 70: 149-50, August 19, 1909.

[GULICK, Luther Halsey] Salaries of medical inspectors. Pedagogical semi-nary, 19: 225-27, June 1912. chart v.

No salary, 75; \$1 to \$100, 47; \$101 to \$200, 50; \$201 to \$300, 44; \$301 to \$400, 35; \$401 to \$500, 34; \$501 to \$600, 18; \$601 to \$700, 2; \$701 to \$800, 12; \$801 to \$900, 6; \$901 to \$1,000, 13; \$1,001 to \$1,500, 18; \$1,501 to \$2,500, 7; \$2,501 to \$4,000, 3. Fee according to service, 19. *From article by* Louis B. Blau.

GULICK, Luther Halsey and AYERS, Leonard P. Salaries of medical inspectors and the number of pupils per inspector. *In their* Medical inspection of schools. New York, Charities publication committee, 1908. p. 1, 23, 139-49. table.

Statistical.

Facts in regard to medical inspection in seventeen cities.

	Average attend- ance.	Medical inspec- tors.	Children per inspector.	Salaries of in- spectors.	Total of salaries.	Per capita cost for salaries only.
Boston, Mass.....	86,839	80	1,086	\$200	\$16,000	\$0.184
Brooklyn, Mass.....	7,781	7	1,111	200	1,400	.179
Camden, N. J.....	9,718	1	9,718	2,400	2,400	.247
Chelsea, Mass.....	6,047	3	2,015	200	600	.099
Detroit, Mich.....	37,757	27	1,398	250	6,750	.178
Lawrence, Mass.....	7,539	1	7,447	1,500	1,500	.201
Montclair, N. J.....	2,503	4	625	305	1,220	.487
Newark, N. J.....	38,562	16	2,410	400	6,400	.165
New Haven, Conn.....	18,135	5	3,627	240	1,200	.066
New York, N. Y.....	523,064	166	3,151	1,200	199,200	.350
Paterson, N. J.....	15,228	3	5,168	1,500 1,200 \$1,200	3,900	.251
Seattle, Wash.....	16,174	11	1,470	1,500 1,200 \$1,200	7,200	.445
Somerville, Mass.....	11,166	7	1,581	200	1,400	.126
Springfield, Mass.....	10,605	11	964	250	2,750	.259
Woonsocket, R. I.....	2,862	6	477	50	300	.104
Worcester, Mass.....	18,273	15	1,218	200	3,000	.164

¹ One.

² Two.

³ Ten.

TERMAN, Lewis M. [Salaries of California school physicians] *Psychological clinic*, 5: 58, May 15, 1911.

Pay of school health officer varies from \$100 to \$3,600 per year. Half-time workers (excluding nurses) receive from \$400 to \$1,600, full-time workers from \$1,500 to \$3,600. Two of the smaller cities pay the physician for each individual pupil, 50 cents in one case, \$1 in the other.

MEDICAL INSPECTION IN INDIVIDUAL LOCALITIES AND INSTITUTIONS.

ALABAMA.

Birmingham public schools. [Superintendent] Report of Medical director. *In his* Annual report, 1911. p. 27-37. illus.

Signed: James S. Mc Lester, M. D.

Each teacher keeps upon her desk blank cards (fig. 1) upon which she notes anything unusual she detects in a child; when these cards are filled, she gives them to the principal who keeps them until the next visit of the medical director, who in a room set apart for the purpose, examines all these pupils

whose record cards have been given him. Communication with attached return postal is sent the parent explaining case and advising that physician be consulted, or the child taken for free treatment to the dispensary at the Hillman hospital; parent is requested to take this notification to the physician or hospital as case may be, and a reply from the physician is to be written upon the return postal card. This reply is noted on the child's original card, which is then filed in an index system. In cases where no physician's reply is received, the nurse visits the child's home, and her data are added on the record card, before its final filing.

Study of 10 elementary white schools (enrollment of 5,343) was begun in March 1911. Results— I. Temporarily subnormal, 192. II. Permanently subnormal: (1) Morons, 33; (2) imbeciles, 10; (3) idiots, 4. III. Truant and incorrigible class: (1) Defective mentality, 16; (2) fair mentality, 51. IV. Epileptic class, 4. V. Physically defective: (1) Physical trouble, temporary or permanent, 347; (2) the blind, 3; (3) the deaf-mute, 0.

In the Paul Hayns school a dental clinic cares for the defective teeth. Central high school has an emergency hospital (see picture. p. 28).

Samples of cards used by the department of medical inspection, p. 35-36.

ARIZONA.

[LOPER, John D.] Medical inspection of school children. Made by competent physician, employed by the board of education.

Letter, signed John D. Loper, superintendent, to U. S. Bureau of education, Division of school hygiene. If child is found to have any infectious or contagious disease, he is sent home with a notice to parent stating the case and asking that he be given treatment by physician of their own choice; readmitted to school only upon certificate of school physician. "About 8 per cent of our pupils have trachoma. Eighty per cent of the children so affected are among our Mexican population and fully 90 per cent of these children have no means of securing treatment. Hence, our greatest problem in this connection is to provide some means by which our indigent children may be treated for this disease."

CALIFORNIA.

California. University. Statistics of the infirmary. Medical examination of new students, 1908-9, 1909-10. In Biennial report of the President, 1908-1910. Berkeley, The University press, 1910. p. 329-61 (tables only)

	In 1908-9, men examined, 607; women, 375.		In 1909-10, men examined, 791; women, 468.	
	Men.	Women.	Men.	Women.
Chest deformity.....	145	91	60	138
Ears, defective.....	33	13	.....	.....
Eyes, defective.....	126	115	.....	.....
Feet, weak arches.....	173	246	193	218
Heart, abnormal.....	79	22	58	8
Hernia.....	35	1	23	.....
Lungs, abnormal.....	11	5	3	10
Nose, diseased.....	54	54	96	13
Shoulders:				
Right lower.....	308	143	185	111
Left lower.....	25	96	26	34
Stooped.....	52	94	67	118
Skin, diseased.....	178	47	218	27
Spine:				
Antero-posterior curve.....	102	79	71	14
Lateral curve.....	46	96	52	113
Teeth, poor.....	115	17	237	150
Throat, diseased.....	106	48	180	179
Thyroid, enlarged.....	2	57	7	56
Varicocele.....	91	.....	128	.....
General condition:				
Excellent.....	39	26	26	21
Good.....	324	166	363	171
Average.....	169	83	419	181
Fair.....	61	45	85	78
Poor.....	4	66	18	17

Days lost in excuses issued on account of illness.

	1908-9 (Aug.-May).		1909-10 (Aug.-May).	
	Men.	Women.	Men.	Women.
Total.....	6,530	3,012	7,326	4,046
Excuses.....	2,328	-----	2,817	1,568
Counted more than once.....	680	323	908	547
Individuals receiving excuses.....	838	503	977	609

LESLIE, George L. Health and development supervision of the public schools of California. *Western journal of education*, 15:17-25, January 1910.

Assembly bill No. 303, p. 25-26.

Also in *Sierra educational news*, 6:27-34, February 1910; and with some verbal changes, in *Psychological clinic*, 4:33-39, April 15, 1910.

TERMAN, Lewis M. Medical inspection of schools in California. *Psychological clinic*, 5:57-62, May 15, 1911.

Legislature, March 1909, "passed bill authorizing (not compelling) cities to make expenditures for carrying out an elaborate system of health supervision in the schools."

BERKELEY.

HOAG, Ernest Bryant. The cooperation of school health departments with other health agencies. *California State journal of medicine*, 9:18-19, January 1911.

Also in *American academy of medicine. Bulletin*, 12:36-39, February 1911.

The medical clinic organized in Berkeley after the San Francisco fire of 1906, was reorganized with staff of 15 representative physicians. The Berkeley charity organization joined with the medical clinic, and the two associations housed in a building near the school and city health department. The Alameda county dental society organized two dental dispensaries, one for Oakland and one for Berkeley, completely equipped in modern dental necessities. The board of education at once placed at the disposal of the Berkeley dental dispensary, offices in connection with those of the medical director of schools. The Red Cross and Tuberculosis societies will also cooperate with the others, and Berkeley will have united toward one common end the efforts of the following health agencies: (1) The school health department; (2) the city health department; (3) the charity organization; (4) the medical dispensary; (5) the dental dispensary; (6) the city charity commission; (7) the Red Cross society; (8) the tuberculosis society.

HOAG, Ernest Bryant. A general plan for health supervision in schools. *California. State board of health. Monthly bulletin*, 5: 173-78, February 1910.

Of the first 750 children referred to the school physician by the teachers in Berkeley, Cal., nearly 70 per cent were found to be in need of medical or dental attention. Of 493 children in the third to the eighth grades inclusive, 53 per cent used tea or coffee or both daily. Of the 493 children, 25 per cent habitually slept in unventilated bedrooms.

LOS ANGELES.

LESLIE, George L. Department of health and development—Los Angeles city schools. *California. State board of health. Monthly bulletin*, 5: 180-85, February 1910.

"(a) All matters pertaining to contagious diseases are under the direction of the city board of health, which employs a staff of physicians and school nurses to attend to this work.

"(b) All matters pertaining to non-contagious defects—to health, growth and development of pupils and teachers, are under the control and direction of the board of education, and conducted in accordance with the health and development law of California."

Los Angeles staff examines approximately 50 per cent of the pupils of each school building, selecting: *First*—Pupils who failed to be promoted. *Second*—Pupils, two, three or more years behind school grade. *Third*—All pupils selected by principals and teachers as needing medical aid (glasses, surgery, etc.). *Fourth*—All pupils of low vitality, unduly nervous, pupils not getting on well in their school work, pupils who need an unusual amount of discipline, of those with criminal tendencies, etc. *Fifth*—All applicants for positions as teachers in the city schools undergo physical examination by the staff. All

teachers in the schools report for examination when requested by the superintendent's office. *Sixth*—Special examination is given to exceptional children. *Seventh*—School buildings are inspected by the staff. *Eighth*—Follow-up work is carried on by the staff, by principals and teachers of the schools.

The following is a summary of examinations of Los Angeles city schools:

Approximate summary of ten months' examinations.

A. All pupils examined by staff.

Enrollment of schools when examined.....	8,647
Number hastily passed upon by examining staff.....	2,808
Number thorough physical examinations.....	3,846

Report of physical examination.

Number defective in eyesight.....	2,012
Notices sent to parents.....	900

1,112 to be watched by teachers and examined further if pupil's health or school work indicates further examination.

Number defective in hearing.....	862
Notices sent to parents.....	175

Most of the defective hearing is due to adenoids and diseased tonsils and lack of care of the nose and throat. For this reason special notices of defective hearing were not sent to parents where the cause was otherwise clearly indicated.

Number defective sets of teeth.....	1,395
Notices sent to parents.....	1,395
Adenoids present.....	1,322
Notices sent to parents.....	6,670

652 to be watched by teachers and reexamined if defective hearing or lowered vitality indicate such examination.

Number abnormal and diseased tonsils.....	1,517
Notices sent to parents.....	669

688 cases to be watched as in case of adenoids.

Poor lung action and chest development; hard to judge accurately.

Functional heart insufficiency.....	314
Notices sent to parents.....	70
Organic heart disease.....	66

B. Special pupils only examined.

Report of physical examinations of pupils, selected by teachers and examiners, because the need of examination was indicated by poor health, lowered vitality, or poor school work—all pupils undergoing the physical examination by examining staff. Notices sent to parents in almost all cases.

Number examined.....	1,129
Defective in eyesight.....	434
Defective in hearing.....	259
Defective teeth.....	446
Adenoids present.....	319
Abnormal and diseased tonsils.....	332
Functional heart insufficiency.....	144
Organic heart disease.....	23

The above pupils were pupils especially selected from different buildings, or pupils of ungraded rooms, or of the special schools, or of the deaf school, or office examinations.

Total number examined for the year, 7,776.

Report of defective growth and vitality and school work accompanying these defective pupils is hard to make. It is mostly measured by the number of repeaters in the schools, by considerable sickness and disease, and by more or less inefficiency and degeneracy.

Report of health examinations of teachers for positions in the city schools.

Number of teachers examined.....	107
----------------------------------	-----

General health below average; hard to judge accurately.

Error in vision uncorrected, 25; wearing glasses, 23.....	48
Hearing below normal (slightly).....	13
Throat only fairly healthy.....	29
Functional heart disturbances.....	12
Organic heart disease.....	5
Lung action below normal.....	13
Disturbed digestion.....	10
Slight pelvic weakness.....	5
Nerve force reduced (somewhat).....	15

Sooner or later the main data which enter into the intelligent handling of pupils must depend to a greater or less degree upon physiological age, the physical and mental endurance of children and youths; the character and kind of work should be adjusted primarily to physiological, not chronological age.

OAKLAND.

Oakland. [Superintendent of schools] The Department of health development and sanitation. *In his* Annual report, 1909-1910. p. 61-64. (Director, N. K. Foster)

"It was impossible to examine every child; hence only those who were defective enough to be observed by the teacher were examined." Number examined, 1,965; not tabulated, 97.

Defective vision.....	641
Defective teeth.....	635
Defective breathing.....	360
Diseased tonsils.....	360
Diseased glands.....	327
Adenoids.....	290
Defective hearing.....	283
Malnutrition.....	87
Skin diseases.....	20
Nervous diseases.....	11
Orthopedic defects.....	9
Heart disease.....	7
Lung disease.....	7
Defective palate.....	4
Number with 1 defect.....	711
Number with 2 defects.....	739
Number with 3 defects.....	336
Number with 4 defects.....	62
Number with 5 defects.....	16
Number with 6 defects.....	3

PALO ALTO.

PAYNE, I. D. [The Palo Alto, California, elementary school children: Physical defects and grade retardation] Psychological clinic, 5: 145-47, October 15, 1911. tables.

Of 467 enrolled, 110 reported as having no physical defect.

"Among the 38 children retarded two or more years there are only three who have no reported physical defects. . . . Four are confirmed cigarette smokers. . . . Twenty-six have one or more serious physical defects." -

PASADENA.

HOAG, Ernest Bryant. Some new problems in school hygiene. *In* American school hygiene association. Proceedings, 1912. Springfield [Mass.] American physical education review, 1912. p. 205-208.

In the schools of Pasadena, California.

"The plan consists of two parts or features: 1. A scheme for a partial health survey to be made by the pupils themselves. 2. A scheme for a more extensive health survey on the part of the teachers.

"The questions given . . . in the sixth, seventh and eighth grades . . . with a general summary of the answers: 1. Have you ever had much sickness? Yes, 88. 2. Are you feeling well now? No, 9. 3. Do you eat lunch every day? No, 8. 4. Do you eat lunch at school? Yes, 79. 5. Do you drink coffee? Yes, 128. 6. Do you drink tea? Yes, 125. 7. Do you have a ventilated bedroom (open window)? Yes, 263. 8. Have you ever been to a dentist? No, 71. 9. Do you ever use a toothbrush? No, 53. 10. Do your eyes smart in school? Yes, 57. 11. Do they trouble you in any other way? Yes, 71. 12. Can you read writing on the blackboard easily from your seat? No, 39. 13. Do you often have headache? Yes, 65. 14. Do you notice any blurring of the print? Yes, 50. 15. Do you have earache? Yes, 38. 16. Can you hear the teacher easily? No, 60. 17. Do you tire easily? Yes, 82. 18. Do you work any out of school hours? Yes, 122 (Average 1½ hours per day). 19. How much do you study at home? (Average 40 minutes.) 20. Do you take regular exercise? Yes, 238.

"Total number of pupils questioned, 270. Average age of pupils in eighth grade, 15 years. Average age of pupils in seventh grade, 14½ years. Average age of pupils in sixth grade, 14½ years."

Pasadena. [Board of education] Report of medical examiner. *In its* Annual report, year ending June 30, 1910. p. 36-38, 41. table. p. 41.

Signed: R. C. Olmstead, M. D.

"Practically every child in the kindergarten and grades receives a physical examination. All high school students receive attention when necessary."

Total number examined.....	4,086
Defective in eyes.....	665
Defective in ears.....	117
With nose defects.....	202
With throat defects.....	240
With defective teeth.....	1,230
Malnutrition.....	195
Nervous defects.....	48

COLORADO.

BATES, Mary Elizabeth. The Colorado method for the examination and care of public school children. In [American academy of medicine] Conservation of school children. Being the papers and discussions of a Conference at Lehigh university, April 3 and 4, 1912 . . . Easton, Pa., Printed for the American academy of medicine, 1912. p. 216-37.

Reprinted.

Requires teacher or principal in every public school, or county superintendent, during the first month of each school year, to test the sight, hearing and breathing of all pupils under his charge; examinations to be made without using drugs or instruments, or coming in contact with said child; and shall keep a record and make written report of such examinations to the State superintendent of public instruction as he may require. Every teacher shall report the mental, moral and physical defectiveness of any child under his supervision, to the principal or county superintendent.

[**CALLICOTTE, William Riley**] Physical examination required first month [of each school year] Colorado school journal, 27: 25-27, September 1911.

Colorado law:

"It shall be unlawful for any person having the care or custody of any child willfully to cause or permit the life of such child to be endangered, or the health of such child to be injured, or willfully to cause or permit such child to be placed in such a situation that its life or health may be endangered, or in any other manner injure such child."

For violation of this act, a fine of \$100 or a three-months imprisonment may be imposed. It is the duty of county and city superintendents to enforce the law for physical examinations and report the results to the Superintendent of public instruction.

Colorado. State superintendent of public instruction. Physical examination [of school children] In her Report, 1909-1910. Denver, Colorado, The Smith-Brooks printing co., State printers, 1910. p. 14-17.

Law enacted by the Seventeenth General Assembly.

In 54 counties complying with the law, 92,427 were examined; 41,546 were found defective, physically, mentally or morally to a degree sufficient to warrant reporting their condition. Defects in sight in 26,978, hearing in 6,155, breathing in 8,045, and other unclassified defects, 21,825. There were 3,071 mental defectives and 746 moral defectives.

WIXSON, Helen Marsh. Health of school-children. In National association for the study and prevention of tuberculosis. Transactions, 1911. Philadelphia, Pa., Press of Wm. F. Fell company, 1911. p. 95-101.

"It is time for us to have a little sane legislation regarding physical examinations in the schools—time for us to relieve overburdened teachers by giving this work to specialists and trained nurses, and while about it, why not set up a minimum standard of clothing, cleanliness, nutrition, and education, and if the standard is not maintained by the child, make the parents responsible?"

[**COMPILER'S NOTE.**—Since medical inspection and care are for those school children whose parents are not able financially or educationally to do these necessary things for these children, how could a "standard" be compelled? Why not say, rather, "make the municipality or State that is able, do these things"]

CONNECTICUT.

GOODENOUGH, Edward Winchester. Some problems connected with the medical inspection in schools. In Connecticut State medical society. Proceedings, 1911. Published by the Society. p. 203-13. table.

In Waterbury, Conn.

Up to 1910, Waterbury had no permanent records of school inspection, either for department of education or department of health.

"My first duty was to observe the heating, ventilation and sanitation of the different school buildings. . . .

"I have attempted to inspect all the children up to and including the fifth grade each month; . . . to inspect the grammar grades in some manner each term. . . .

"The Waterbury dental society has done . . . an enormous amount of work in tabulating the condition of the children's teeth."

Discussion: p. 214-221.

New Haven. Board of education. Medical inspection. *In its Annual report*, year ending December 31st, 1910. p. 37-39.

Five school physicians and three school nurses.

Main effort of the physicians is to prevent the development of contagious disease. Whenever a pupil in school appears to the teacher to have symptoms of a contagious disease, the principal immediately summons the school physician. School physicians do not prescribe in any case.

SLOAN, Thomas G. The medical supervision of school children in South Manchester, Conn. Medical record, 82: 339-42, August 24, 1912. tables.

In the fall of 1906, out of over 1,600 school children, 72 were found to be a year or more behind grade, 51 whose backwardness could not be explained; on examination, 50 of the 51 had one or more defects. In 1907, 1,437 were examined for eye defects, and 91 were found needing treatment. In 1908, 204 were examined for nose and throat troubles, 126 found needing operations or treatment. In January 1910, a special examination was made of 1,564 pupils, all who were at that time in attendance; results as follows:

Number examined.....	1,564
Defective teeth (needing extraction).....	295
Enlarged tonsils.....	113
Adenoids.....	73
Adenoids and teeth.....	71
Tonsils and adenoids.....	62
Tonsils and teeth.....	44
Adenoids, tonsils and teeth.....	39
Teeth and markedly enlarged cervical glands.....	15
Enlarged cervical glands.....	4
Miscellaneous.....	16

In October 1911, 1,739 children were examined and defects found as follows:

Teeth (including those needing extraction and those needing filling).....	707
Tonsils, needing operation.....	83
Tonsils moderately enlarged.....	128
Adenoids (marked).....	37
Cervical glands.....	23

The medical inspector is in his office at the school, with the school nurse in attendance at 10 a. m., two mornings a week. All children the teachers think need attention are sent to him. No child he sends home is permitted to attend school until seen by medical examiner.

In 1910-11 South Manchester suffered from a long-lasting epidemic of scarlet fever, starting before the opening of schools in the fall. The time lost by ill children amounted to 3,686 days; excluded children, 4,394 days. Total cost of time lost, about \$2,500; with medical inspection cost, etc., and cost to families, total about \$15,000. Open-air school was opened January 26, 1911.

Therapeutic value of medical inspection of school children. American medical association. Journal, 55: 596-99, August 13, 1910. tables.

Presents three view-points of the relation of the child to the matter in hand: "(1) Has the child, while in attendance at school, any need of medical supervision? (2) The relation of the child to the community at large. (3) The consideration of the child as an individual" (Kenna, W. Matthew. Regarding medical inspection of school children in New Haven. Table of results, also included in the excerpt given at length in this article).

Table of results of examination of 400 school children, New Haven, Conn. "A" denotes defect present, not requiring treatment; "B," treatment advisable; "C," treatment imperative:

	Good.	Fair.	Poor.
Apparent physical condition.....	171	104	125
Adenoids.....	A 19	B 35	C 2
Anemia.....	31	16	0
Cardiac disease.....	5	10	0
Defect of nasal breathing.....	23	4	0
Defect of palate.....	0	0	1
Defect of teeth.....	69	68	59
Skin:			
Contagious.....	0	0	1
Parasitic.....	0	2	5
Vermis.....	2	2	52
Hypertrophied tonsils.....	64	46	1
Orthopedic defect.....	9	3	0
Pulmonary disease or tuberculous condition.....	1	4	0
Enlarged glands.....	15	2	0
Vision:			
Myopia or astigmatism.....	8	63	11
Conjunctivitis.....	7	0	1
Granular lids.....	8	1	0
Nervous diseases.....	13	7	1
Malnutrition.....	22	11	0
Defect of hearing.....	1	5	0
Backwardness.....	47	0	0

These statistics "have not before been announced," states the writer.

DISTRICT OF COLUMBIA.

MACATEE, H. C. School laggards. Some comments on the local situation. Washington medical annals, 10: 149-59, June 1911. tables (from Ayres, L. P.)

Reprinted.

Conclusions:

"1. The public schools here exhibit the same problems of retardation and elimination as do those of other cities.

"2. The schools here are no better adapted to the average child with the average health history than are those in other cities.

"3. Educators should modify the school course so as to allow for the factor of illness; physicians should endeavor to restore children to the schools as soon as possible so as to avoid elimination from age and grade disparity.

"4. Special schools have been established here for the case of incorrigible and mentally defective children; other special ungraded schools ought to be established to care for normal children during temporary retardation, in order that they may be restored to their grades, and for physically defective children so as to adapt the schooling to the capacity of each child. Such schools should perform the same relative function in the schools as the convalescent hospital is designed to subserve in the care of the sick.

"5. The problems of retardation carry new things for the physician engaged in work among children to know.

"6. Adequate medical inspection is essential to the reduction of retardation in healthy children and in physically defective ones.

"7. Medical inspection as now provided is inadequate.

"8. School nurses are indispensable for the best results of medical inspection.

"9. Congress is not willing to give to this city what is everywhere recognized as an essential weapon against retardation of school children, having at the last session reduced the medical inspection service and having failed to provide for school nurses.

"10. The Dillingham bill providing for the establishment and maintenance of a laboratory for the study of defectives in the District of Columbia should be enacted, both for its broad general purposes and also for the proper study and classification of defective school children.

"11. Retardation is in part brought about by repeated failures to succeed and thus may be a causative factor in the neurasthenias and psychasthenias so frequent in American life. The problem should engage the attention of physicians."

FLORIDA.

BYRD, Hiram. Medical inspection of schools. In Florida. State board of health. Annual report, 1911. Deland, Florida, The E. O. Painter printing co., 1912. p. 331-41. (State board of health of Florida. Publication 96, June 1912)

Largely, the extent of hookworm disease in Florida and the need for medical inspection as a factor in its eradication.

"Let us pause here long enough to see if we can get the full import of this one disease.

"White people suffer from it more than negroes.

"Children suffer from it more than adults.

"The rural population suffers from it more than the urban.

"Our inquiry will be then to determine the cost in dollars and cents that hookworm disease entails upon our rural white children.

"Fifty-five per cent of our people are white. Seventy per cent of our people live in the country. Therefore 28 per cent of our white school children live in the country.

"A canvass was made by the State board of health covering 6,000 rural school children and it was found that 52 per cent of them were hookworm sufferers.

"From which it is seen that 15 per cent of the total school children of the State are suffering from hookworms.

"The extent to which the sufferer's vitality is lowered varies. But it can be measured with a fair degree of accuracy by the color of the blood. That is to say, rich, healthy, deep red blood is indexed at 100. The hookworm sufferer's blood becomes pale and watery in proportion to his infection. And as the infection gets worse and worse the color index of the blood runs down and down, 90, 80, 60, and even to 20 per cent of the normal. Perhaps an average color would be 70 per cent. But, to be especially conservative, we will assume that it is not so low as that. We will assume that it is 80 per cent. That means that the sufferer is off 20 per cent in strength, 20 per cent in intellectual energy, 20 per cent in power of learning.

"Now if 15 per cent of our school children are off 20 per cent in power of development, that lowers the whole power of development of the school children of the State by 3 per cent.

"We expend upon our public education now about \$2,000,000 a year. Three per cent of \$2,000,000 is \$60,000.

"Are these figures facts? Verify them for yourselves. Sixty thousand dollars of our all too scant educational fund wasted annually—literally devoted to the maintenance of hookworms. Sixty thousand dollars for hookworms, and we haven't taken into account any of the negro population. Sixty thousand dollars' loss, and we haven't taken into account any children under or over school age. Sixty thousand dollars' loss annually."

Florida. Committee on sanitation and public health for the schools of Florida. Report and recommendations. In Florida. State board of health. Annual report, 1911. Deland, Florida, The E. O. Painter printing co., 1912, p. 325-27.

Chairman, Hiram Byrd.

Recommendations:

"(a) That 'Medical inspection of schools' be defined as a systematic effort to protect improve the health of any or all pupils. With this in mind we would recommend—

"(b) That the time is ripe for the medical inspection of schools.

"(c) That the individual school, whether large or small, must of necessity be the unit of operation.

"(d) That medical inspection may be as complete or as partial as the individual school desires or can afford.

"(e) That it may be carried out either by the board of education or the board of health. (This refers strictly to the local board of education and local board of health.)

"(f) That it may be undertaken by any school in the State, however large, or however small.

"(g) That the larger schools can make it more thorough and complete than the smaller ones; but

"(h) That no school is too small to introduce some definite systematic régime looking to some form of protection of the health of the pupils.

"**NOTE.**—In many schools, particularly in the rural districts, the most important public health problem is hookworm eradication. This can be accomplished by the teacher, pupils, and parents, without any further advice than they can get from the State board of health.

"(i) That where it can be afforded medical inspection should be carried out by the combined efforts of the teacher, the doctor, and the nurse.

"(j) That where all three can not be afforded, by the teacher and doctor without the nurse.

"(k) That where a doctor can not be had, it can be carried on by the teacher.

"**NOTE.**—There is a considerable amount of work that the teacher can do without the assistance of a doctor. In Massachusetts the teachers examine the eyes of the pupils, not to determine what ails them, but to determine whether they are normal or abnormal. If any marked deviation from the normal is found, the pupil is referred to a physician.

"(l) This presupposes a certain amount of definite information of a more or less technical character, that in the ordinary course of events the teacher does not get, to which end we believe that the teachers should receive definite instructions as to how to conduct such examinations as may be deemed advisable.

"(m) That the meeting of the teachers in the several county institutes, and at the State teachers association, and the summer normals, and the colleges, afford convenient fora from which the necessary instructions can be given.

"(n) That the State board of health is the logical body to undertake the instruction of the teachers for this work, hence we believe

"(o) That the immediate need is for the State superintendent of public instruction, and the State health officer, to cooperate in providing for a course of demonstrations in all the summer normals and similarly in all the colleges which have normal departments, and

"(p) That these demonstrations shall cover such features as may be adjudged of vital importance by the State health officer and the State superintendent of public instruction."

STILES, Charles Wardell. Frequency of hookworm disease or ground itch anemia among public school children in Southern Florida. Public health reports, 25: 351-54, March 25, 1910.

"Summary of 1,306 pupils in 8 schools in 6 towns in 3 counties.

	Number seen.	Number of suspects.	Per cent of suspects.
Boys.....	596	408	68.6
Girls.....	710	322	45.3
	1,306	731	55.9

"These statistics of school children are exceedingly significant, from various points of view:

"First. These children are growing up under a severe physical handicap. If they do not undergo medical treatment, not only will this handicap be appreciable in deaths due directly to hookworm infection, but this infection will so reduce their vitality that they will more readily fall a prey to other diseases, such as tuberculosis, pneumonia, malaria, etc.

"Second. Their physical development is of necessity inhibited, and many of them may reach maturity stunted in their growth.

"Third. Children in this condition can not possibly be expected fully to assimilate the education which is being given to them, and as a result the money being spent on education is not giving to these towns full returns. . . .

"Fourth. Not only these three counties but all other parts of the South visited by winter tourists should awaken promptly to the self-evident fact that the danger is present that such tourists will soon avoid those rural portions of the South in which the soil pollution is so extensive as to lead to 55.9 per cent hookworm infection among the school children. . . .

"At least five of the teachers in the schools visited showed clear and pronounced effects of hookworm infection."

GEORGIA.

Atlanta. Board of education. Department of medical inspection. *In its Report*, January 1912. p. 231-32.

Signed: Robert G. Stephens, M. D.

Medical inspection established in Atlanta, winter of 1909. Force, to date, consists of chief examiner, one white assistant, one colored, four white nurses and one colored.

"Method pursued is that of routine examination. A school is visited daily by an examiner and nurse until each child in that school has received a physical examination." Defects are noted on individual cards. "If the defect is remediable a notice card is sent to the parents suggesting that dental or medical attention be given. . . .

"Out of 5,838 recommended for treatment in 1910-1911, 50.9 per cent received treatment, but in order to get this number treated the nurses made 4,814 visits to homes.

"Schools examined for the first time furnish in every instance from 60 to 94 per cent of the children defective."

Augusta and Richmond County, Georgia. [Board of education] Medical inspection of schools. *In its Annual report*, 1910. p. 22-23; 111.

"During the past year we have had a very satisfactory experiment with . . . district nurse visitation and inspection at the John Milledge school. The district nurse of the fifth ward has attended that school for two or three hours each week, has visited all the grades, and has had referred to her all suspected cases of disorder or disease. She then refers the cases to the regular physician of the city, or to specialists. . . .

"There is also a movement on the part of the board [of education] to engage the cooperation of the board of health by which . . . at least one nurse and one physician shall be especially set apart for school inspection . . . as a part of the regular work of the board of health . . . by which a complete system of medical inspection can be inaugurated for all the schools."

FORT, A. G. Examination of county school children. Medical association of Georgia. *Journal*, 2: 7, May 1912. table.

"The combined results of the inspection of three rural counties in Georgia are as follows:

	White.	Colored.	Total.
Anemia.....	894	774	1,668
Defective vision.....	292	28	320
Defective teeth.....	596	368	964
Enlarged tonsils.....	406	252	658
Adenoids.....	400	144	544
Defective heart sounds.....	77	20	97
Sounds indicative of pathological conditions in lungs.....	33	72	105
Diseases of ears.....	110	2	112
Number examined.....	1,663	1,556	3,219

"In the inspection of the sanitary surroundings of 59 of these schools, we found 17 privies only, and all of these poorly constructed. Is it any wonder then that 1,668 gave clinical evidence of hookworm infection and microscopical examination revealed that an average of 74.7 per cent of the suspects were infected?"

FORT, A. G. [Hookworm disease among Georgia school children] American school board journal, 43: 39, October 1911.

Defectives among the children of Stewart, Webster and Tift counties, Georgia.

	White children.	Negro children.
Number examined.....	1,663	1,556
Number defective.....	1,348	888
Normal.....	315	668
Number of defects.....	3,460	1,721
Hookworm suspects.....	894	774
Defective eyes.....	292	28
Enlarged glands.....	470	168
Defective teeth.....	596	368
Enlarged tonsils.....	406	252
Adenoids.....	406	144
Skin defects.....	6	15
Heart disease.....	77	20
Lung disease.....	33	72
Bone diseases.....	5	5
Ear diseases.....	110	2

Savannah and County of Chatham. [Board of education] Health and sanitation. *In its* Annual report, year ending June 30th, 1910. p. 16-18.

"Whenever in the judgment of the principal a pupil of the public schools needs medical treatment . . . he shall notify the parent or guardian. . . . Such pupil shall not be permitted to continue in attendance upon the public schools until a certificate from the attending physician shall have been presented to the principal."

This plan has been in operation since January 1, 1910. Cases reported, 191.

[Stephens, Robert G.] Medical inspection of school children. *In* Georgia educational association. Proceedings and addresses, 1911. Atlanta, Ga., Bennett printing house. p. 65-73.

General résumé, by the medical examiner of schools, Atlanta, Ga.

"Out of a group of 2,375 examined in Atlanta in 1909, 1,452 were defective, or 61.1 per cent; out of 2,168 in Atlanta examined in fall of 1910, 1,653 or 76.2 per cent were defective."

Defects: Atlanta, 1910.

Nutrition.....	50
Anaemia.....	28
Glands.....	192
Heart.....	11
Skin.....	42
Nervous.....	6
Teeth.....	1,372
Tonsils.....	375
Adenoids.....	257
Eyes.....	189
Lungs.....	9

Two medical inspectors and four nurses work under control of board of education. Two weeks are allowed to elapse following notification to parents of defects, after which time a nurse visits the home of each defective child who has not returned a card signed by physician or dentist.

IDAHO.

HYDE, George E. Medical inspection of schools. *Northwest medicine*, n. s. 3: 340-43, December 1911.

Rule V, of the State board of health of Idaho, requires the county physician to "report, on or about September 1 of each year, the sanitary condition of the public schools of the county in which he resides."

The author receiving permission to examine the school children in his home town, Rexburg, "to see if the findings of inspection in other parts of the county could be borne out" by his personal investigation. Teachers tested the eyes with Snellen's chart, took records of heights and weights, ages, grades, number of years attending school, and history of contagious diseases; Dr. Hyde examining the ears, nose, throat, and teeth.

Results.	Cases.	Per cent.
Deafness.....	16	4
Adenoids.....	8	2
Hypertrophied tonsils.....	54	14
Mild eye defect:		
Ranging from 20/30 to 20/40.....	58	
Ranging 20/50 to 6/200.....	41	11
(31 of these pupils had headaches on reading; 12 had change of posture at desk in order to be able to write their lessons; 11 could not see the lesson written on the blackboard, from where they sat in their room.)		
Defective teeth (of these, 25 per cent in very bad condition).....		55
Mitral regurgitation (histories of rheumatism in 4 cases).....	5	
No discoverable defects in.....		28

"These results . . . show that the children in this western country have not nearly the same number of physical defects among them as examination shows exists among the schools of the East."

ILLINOIS.

Chicago. Board of education. Department of child-study and educational research. Child-study and educational research. In its Report of the Superintendent of schools for the year ending June 30, 1912. p. 44-50, table.

From Report of directors, D. P. MacMillan.

"Of the whole number of children, 2,095, examined during the year . . . with the exception of truants and incorrigibles . . . the maximum number, 460, falls in that group which is made up of children with nervous disorders, particular physical defects or general constitutional depletion. In the majority of cases they proved to be extremely backward pupils."

Children examined from July 1, 1911, to June 30, 1912.

Blind or defective vision.....	115
Deaf or defective hearing.....	125
Crippled.....	58
Truants and incorrigibles, at office.....	34
Truants and incorrigibles, parental school.....	466
Subnormals.....	269
Defective in speech (persistent cases only).....	66
Tuberculous (not including anemics).....	12
Epileptics (most aggravated cases only).....	43
Children with constitutional depletion or nervous disorders or specific physical defects.....	460
Special cases: Unusually bright children, moral delinquents, mental aberrants.....	276

Chicago. Department of health. Bureau of contagious diseases. Medical school inspection. In its Report, 1907-1910. p. 22-33, 39. tables. chart. forms.

"For the supervision of approximately 400,000 school pupils in the public and parochial schools . . . the city employs 100 medical health officers and 41 nurses, all of whom secure their appointments by competitive civil service examinations. For administrative purposes 5 medical health officers are selected to supervise without extra pay, the other 95; and 2 nurses, one receiving \$15 per month more than the others, supervise the other 39. The city is divided into 95 districts, to each of which is assigned a medical health officer, whose duty it is to inspect the pupils in the schools of the district. In addition, he has control and supervision of all contagious diseases in the territory to which he is assigned. . . .

"The medical health officer makes daily visits to each school assigned him, commencing work at 9 a. m. At the beginning of the term he makes a rapid inspection of all pupils to determine if any . . . bear evidence of a contagious disease.

"For this preliminary inspection the health officer visits each room, stands with his back to a window, and has all pupils in the room file past him. . . . The pupil . . . exposes to view palms of hands and wrists; with the fingers of one hand pulls down the eyelid, exposing the conjunctiva; opens the mouth and puts out the tongue. This hurried inspection is made by the physician without touching the pupil. . . . After the completion of this preliminary inspection . . . the regular forenoon inspection is taken up.

"Inspections and examinations at high schools are done only on request or . . . emergency. Parochial schools desiring . . . have the same service as the public schools. Inspection for contagious disease in parochial schools is enforced. In making physical examinations, we begin with the pupils in highest grade, completing one school before beginning 'physicals' in another.

"The daily routine is as follows:

"Inspection is first made for contagious diseases, after which ten or more physical examinations are made.

"The health officers request principals to have all pupils in readiness for inspection who have been absent four consecutive days . . .

"All children to be examined are sent to a room by themselves. . . . Inspection is made with refer-
ence to communicable diseases and vaccinal status of pupils.

"Pupils with marked defects needing immediate attention . . . referred by the principal, teacher
or nurse, are examined without delay. If agreeable to the principal, Friday is [the] . . . day for such
emergency examinations.

"Health officers are forbidden to make any suggestions as to the treatment or management of pupils
who are sick. This command is imperative.

"Beginning November 1, each year, medical officers vaccinate free of charge any child or pupil who
may apply to them for vaccination; . . . vaccinate no child without the consent of parent or guardian.

"Health officers carry with them the following supplies: Circulars on Prevention of consumption;
The vaccination creed; special circulars on each of the infectious diseases, and warning slips to dis-
tribute and post in public places; wood spatulas for tongue depressors [Each tongue depressor is used
only once and then burned]; culture media and outfits for Widal test."

The blanks follow in the order in which they are used: Family history; physical record; medical
inspection of schools exclusion; non-exclusion notification of abnormal condition; health officer's daily
report; card for child to take to physician and return to school nurse; health officer's monthly report.

A summary of the reports of the school medical inspectors of the Department of Health, of Chicago,
for the year 1909, gives the following statistics:

Of the total number of children examined, 123,897 (51 per cent) were defective.

Defects.	Per cent of the total defects.	Defects.	Per cent of the total defects.
Teeth defects.....	32.3	Skin diseases.....	1.8
Tonsils hypertrophied.....	20.0	Orthopedic defects.....	1.0
Vision defective.....	15.9	Heart diseases.....	.6
Glandular enlargement.....	12.3	Mentality defective.....	.5
Nasal affections.....	4.8	Nervous diseases.....	.4
Adenoids.....	3.0	Pulmonary diseases.....	.3
Anemia.....	2.6	Palate defects.....	.2
Nutrition imperfect.....	2.2	All other defects.....	.1
Hearing defective.....	2.0		

East St. Louis. Board of education. Retardation. In its Annual report,
1910-11. p. 34-46. tables (Grades 1-12)

"Of 534 pupils marked to repeat the work of next term," 48 suffered from physical defects; 44, mental
defects.

In all white schools, pupils, 6,842; over age, 676, or 39 per cent. In all colored schools, pupils, 1,082;
over age, 714, or 69 per cent.

HEDGER, Caroline. Physical examination of below-grade children. Illinois
medical journal, 15: 433-39, April 1909. tables.

Examination of 208 (126 boys; 83 girls) below-grade public school children in Chicago.

	Boys.	Girls.
	<i>Percent.</i>	<i>Percent.</i>
Cervical glands.....	89.6	95.1
Goitre.....	23.2	25.3
Hypertrophied tonsil.....	55.2	65
Irregular pulse.....	23.2	19
Emic murmurs.....	50.4	36.1
Transmitted apical murmurs.....	11.2	10.8
Lateral curvature.....	20	39.7
Negative lungs.....	41.6	43.3
Suspicious lung findings.....	40	43.3
Positive lung findings.....	18.4	13.4
Cough.....	8	19
Pedculosis.....	40	72.3
Bad teeth.....	25.6	25.2
Tea and coffee.....	99.1	100

Quincy. [Board of education] Medical inspection. *In its* Annual report of the public schools, school year ending June 30, 1911. p. 31-38. tables.

Total number inspected.....	3,018
Defective.....	1,191
With defective eyes.....	284
With defective hearing.....	87
With throat defects.....	770
With nasal defects.....	336
With defective teeth.....	292
With malnutrition.....	5
With nervous trouble.....	23
With kidney trouble.....	2

Physicians assigned to the various schools, for the inspection, at a joint meeting of the committee of the Adams County medical society and the board of education.

Signed by Committee of board of education, and Superintendent of city schools Edward G. Bauman.

KENTUCKY.

HANCOCK, D. O. School sanitation. *Kentucky medical journal*, 9:724-26, October 1, 1911.

Proposes a "Health committee for each school, composed of four members, the teacher, a physician, and a woman and a man who are each patrons of the school. . . .

"That this committee have immediate charge of health matters in the school and district; that it be organized, president, secretary and medical inspector; that it have meetings once each month and oftener if needed; that it keep records of its doings; . . . that this committee see to it that the school-house is properly constructed and kept; that conditions are such as will insure the comfort and health of teachers and pupils; that contagious diseases are immediately controlled; that infectious diseases are not carried to the school.

"There is a useless and criminal sacrifice of time, comfort, health and life in our schools which should not exist. . . . The remedy is immediate supervision by those who are on the field and who have personal interest at stake."

Following this address of Dr. Hancock before the Henderson county teachers' institute, August 24, 1911, a resolution was adopted:

"*Resolved*, That the county superintendent of schools is hereby requested by the institute to appoint a health committee as suggested by the paper of Dr. Hancock, in each school district in Henderson County; that the teacher and trustees of each school are hereby requested to organize the committee thus appointed and to assist it in doing the work contemplated; that the county superintendent have printed a list of these committees for use in organizing for school sanitation."

LOUISIANA.

New Orleans. Superintendent of schools. [Report of the] Department of hygiene. *In his* Annual report, 1910-1911. p. 85-142. tables.

Reported as defective by grammar and primary grade teachers, 2,339 pupils; and 85 kindergarten pupils.

	Boys.	Girls.
Total examined, 1,303:		
Defective hearing.....	22	20
Enlarged glands.....	454	323
Defective vision.....	193	280
Defective breathing.....	158	91
Defective teeth.....	409	360
Hypertrophied tonsils.....	161	151
Adenoids.....	77	50
Other defects.....	96	50

From September 26 to June 16, the total was:

Scarletina.....	231
Diphtheria.....	145
Measles.....	660
Smallpox.....	12

Among nonquarantinable exclusions were:

Impetigo.....	57
Scabies.....	215
Pediculosis.....	197
Eczema (chronic).....	27

Applicants for teachers' positions and pupils entering normal school required to stand a physical examination.

MAINE.

Augusta, Maine. Board of education. Medical inspection. *In its Annual report, 1910-11.* p. 29-33. tables.

"Organisation of this department is as follows: First, the employment of two physicians. . . . Second, an annual ear and eye test, conducted by the teachers. . . . Third, an annual inspection of the teeth by the dental inspector. . . . Fourth, the distribution of the health leaflets issued by the State board of health. . . .

"Medical inspectors shall visit and inspect monthly each building assigned to them; shall examine any teacher or school employee whenever such examination is necessary; . . . shall visit each school-room at least once a year and make a general examination of the pupils; . . . shall examine all pupils referred by the board, the superintendent, principals, or teachers; . . . and shall exclude from school any employee or pupil whose presence is dangerous to the health of the school. They shall furnish teachers such information and instruction as they may deem necessary in the interest of health. They shall report to the superintendent any insanitary condition in or around school buildings. . . . Medical inspectors, and school employees acting as such, shall give no treatment."

TABLE III.—*Eye and ear test.*

	2d grade.	3d grade.	4th grade.	5th grade.	6th grade.	7th grade.	8th grade.	9th grade.	High	Ru- ral.	To- tal.
Number examined.....	157	156	167	117	181	121	135	76	255	163	1,458
Number having eye trouble.....	44	32	29	13	11	9	11	6	28	25	208
Number having ear trouble.....	12	9	5	2	.....	10	2	1	2	6	49
Total number defectives.....	40	35	27	12	11	15	13	7	30	35	214
Per cent of defectives, all kinds.....	25.5	22.4	16.2	10.2	8.4	12.4	11.3	9.2	11.2	15.3	14.6

TABLE IV.—*Showing results of dental inspection in the schools.*

	Kin- der- gar- ten.	Grade.									First year high.	Ru- ral.	To- tal.
		1	2	3	4	5	6	7	8	9			
Number ex- amined.....	60	173	135	142	157	115	116	110	98	68	81	135	1,390
Number who received dental attention.....	16	19	30	22	35	33	39	50	60	43	57	22	431
Number of cases teeth need cleaning.....	50	156	132	104	142	93	92	76	64	43	49	118	1,119
Number of cases decayed teeth...	46	151	127	97	145	88	85	68	61	34	50	123	1,075
Per cent having defective teeth..	76.7	87.2	94.0	68.3	92.3	76.5	73.9	61.8	63.5	60.0	61.7	91.1	77.3
Per cent who had received dental attention.....	26.6	10.9	22.2	15.0	22.3	28.7	33.9	45.4	62.5	70.6	70.4	16.0	31.0

Maine. State superintendent of public schools. Medical inspection. *In his Report, 1910.* Augusta, Kennebec journal print, 1910. p. 105-14. map.

Map showing States having medical inspection, p. 114.

Law in effect, in Maine, July 1, 1909.

MASSACHUSETTS.

HANSON, Justice G. Medical inspection in public schools. Boston medical and surgical journal, 163:242-43, August 11, 1910.

"If careful systematic inspection is carried on throughout the State, succeeding generations because of it will be less burdened by physical and mental cripples, will be more free from contagious and infectious diseases, and will have a more intelligent conception of disease, and its cause and effect."

Discussion: p. 243-45 (Dr. Thomas F. Harrington.)

MARTIN, George H. Medical inspection in the public schools of Massachusetts. In Massachusetts. Board of education. Annual report, January 1911. Boston, Wright & Potter printing co., State printers, 1911. p. 164-198. tables.

Reprinted.

"All of the 33 cities and 297 of the 321 towns report in the annual school returns for 1909 that school physicians have been appointed. . . .

"In other words, 98 per cent of the school pupils in cities and towns are having nominal medical inspection. . . .

"From the returns received at the office of the board of education and the published reports of city boards of health, it appears that during the year 1909 there was spent for the medical inspection of school children the sum of \$101,745.59. This is an average of about 20 cents per child. But as in some cities, where the inspection is in the hands of the board of health, the parochial schools are inspected as well as the public schools, and in Boston, which has about one-fifth of all the enrolled children in the State, the cost of inspection is much above 20 cents, the actual average cost outside of Boston is much below 20 cents.

"What school authorities should do is stated by the statutes . . . to be twofold:

"First, to provide for a general examination of all the children in the public schools at least once a year for any defect or disability tending to interfere with their school work.

"Second, a special examination of children (a) who show signs of being in ill health or of suffering from infectious or contagious disease; (b) who are returning to school after absence on account of illness or from unknown cause. . . .

"There is another function of the school physician. . . . The law says he shall make 'such further examination of teachers, janitors and school buildings as in his opinion the protection of the health of the pupils may require.' . . .

"Dental clinics for school children have been established in a number of localities.

"In Lynn a dental dispensary was carried on in 1910 in connection with a neighborhood house. Fifteen Lynn dentists and 10 out-of-town dentists gave their services. A nominal charge was made of 15 cents for cleaning, 10 cents for extraction and 25 cents for fillings. One thousand and ten operations were performed upon children. . . .

"In Winchester . . . the dentists in town, nine in number, each give one-half day a week to work with needy cases, at a nominal charge of 25 cents per case. . . . The school nurse works in cooperation with the dentists. . . .

"The school returns show that the eye and ear tests have been given as required by law in all the towns and cities, excepting Otis and Mount Washington. Four annual examinations have been made since the law was passed. . . .

	1907	1908	1909	1910
Number of pupils examined.....	432,464	437,435	441,463	454,058
Number defective in vision.....	96,607	81,158	73,129	71,902
Number defective in hearing.....	27,387	22,601	20,167	17,329
Per cent of defectives in vision.....	22.3	18.5	16.5	15.8
Per cent of defectives in hearing.....	6.3	5.1	4.5	3.8

"One or more nurses are now employed in the schools of Amherst, Boston, Brockton, Brookline, Cambridge, Canton, Holyoke, Lancaster, Leominster, Lowell, Northampton, Northborough, Walpole, Waltham and Winchester."

SNEDDEN, David [Samuel] Problems of health supervision in Massachusetts. In American school hygiene association. Proceedings, 1912. Springfield [Mass.] American physical education review, 1912. p. 18-26.

Also in Journal of education, 75: 458-60, April 25, 1912.

"I. Legislative provisions.

"II. Application of laws.

"III. Problems of health supervision: A. How can health supervision be planned and organized so as to promote effective administration? B. What should be the distribution of the functions of health supervision among various possible agencies, such as teachers, nurses, physicians, physical trainers, and the home? C. What must be the character and training of those cooperating in this work? D. What shall be their relation to the existing school authorities? E. What will be the necessary financial cost of such service? F. What shall be the control of health supervision over the actions of parents and other non-school agencies affecting the children; and G. Is there needed provision of facilities for investigation and supervision by state authorities?"

BOSTON.

AYER, S. H. Medical inspection of schools in Boston, Mass. Boston medical and surgical journal, 164: 456-60, March 30, 1911.

Historical sketch; salaries, etc., Boston and New York.

Read at the Boston health conference, 1915, February 20, 1911.

COUES, William Pearce. The medical inspection of schools in Boston, the present limitations and future possibilities. Boston medical and surgical journal, 160: 746-48, June 10, 1909.

"The teachers in the various rooms send a slip down to some central place with the child's name, number of the room and symptoms of trouble. . . . The inspector summons the children to be examined . . . [and] examines them, writing on the slip the diagnosis and advice. He sees only the children whom the teacher sends slips for, that is, the primary necessity for medical inspection devolves on the judgment of the teacher. . . .

"One of the conditions which should be changed . . . so that the teacher can be freed from responsibility and care in this matter."

COUES, William Pearce. Some problems of school inspection. Boston medical and surgical journal, 164: 814-16, June 8, 1911.

Result of examination of 158 retarded pupils.

	Number.	Per cent.
Defective vision.....	41	25.9
Defective hearing.....	2	1.2
Chronic enlarged tonsils.....	122	77.2
Defective or carious teeth.....	127	80.3
Marked pallor.....	34	21.5
Markedly undersized.....	3	1.8
Extremely nervous.....	1	.63

"It is of interest to compare the result . . . with that of 212 children of normal mental caliber; . . . 72 per cent of these children showed chronic enlarged tonsils; 50 per cent showed carious teeth. . . . It would seem from these statistics that chronically enlarged tonsils and the generally accompanying adenoids had little to do with the mental backwardness of these children, but that carious teeth might play a considerable rôle in the causation of this condition."

GALLIVAN, William J. Child hygiene. Monthly bulletin of the Health department of the city of Boston, 1: 29-36, 50, February 1912. tables.

Division of child hygiene "was created in March, 1910. It is concerned with the physical welfare of every child in Boston from the time of conception up to the age of 16 years. The work is classified . . . as follows: 1. Pre-natal and post-natal work. 2. Medical inspection of schools. 3. Physical examination of licensed minors.

"Medical inspection of schools begins at the kindergarten class and ends with the high schools. Of equal importance are the three objects . . . in view, as follows: 1. The detection of communicable diseases and the exclusion from school of every pupil so afflicted. 2. The protection of every pupil in the schools from contagion unrecognized by parent or teacher. 3. The detection of such defects which if untreated would result in permanent injury to the pupil.

"The board of health is emphatic in its stand against prescribing for any disease or defect discovered. . . . Every case requiring medical or dental aid is referred to the family physician or to the family dentist. Those who are unable to employ professional services are referred to reputable hospitals or dental clinics.

"Under the present system, the school physicians are under the authority of the board of health; the school nurses are under the authority of the school committee. The number of nurses employed is altogether inadequate for the work required. The board of health is ready to employ a corps of nurses to assist in school inspection, but up to the present time, they have not been willing to duplicate a system maintained by the school committee. A transfer, then, of the nurses from the school committee to the board of health would render medical inspection of schools as nearly perfect as human endeavor can accomplish.

"The school population at this date is 123,091. This includes attendance in public and parochial schools. For this work there are employed 82 physicians, who are required to visit every school building on every school morning of the year."

¹ See same, 162: 215, February 17, 1910.

Result of the physical examination of school children in Boston for the year 1911-1912.

Total number of children examined.....	118,781
Total number of pupils without defects.....	40,860
Total number of pupils with defects.....	77,921
Defects noted as follows:	
Mental deficiency.....	501
Defective nasal breathing.....	9,063
Hypertrophied tonsils.....	25,121
Defective teeth.....	81,340
Defective palate.....	371
Cervical glands.....	13,711
Pulmonary disease:	
Pulmonary tuberculosis.....	123
Acute bronchitis.....	1,169
Asthma.....	63
Pleurisy.....	42
Miscellaneous.....	987
Cardiac disease.....	3,091
Nervous disease.....	506
Orthopedic defects:	
Tuberculous.....	693
Nontuberculous.....	1,181
Skin.....	5,243
Rickets.....	1,019
Malnutrition.....	3,891

SMITH, C. Morton. Diseases of the skin. Boston medical and surgical journal, 166: 623-24, April 25, 1912.

A complete physical examination, September 13 to December 31, 1911, showed 11,691 children in the Boston schools, having skin diseases. The number was exceeded only by decayed teeth, hypertrophied tonsils, defective nasal breathing and enlarged cervical glands. The common diseases are scabies, pediculosis, impetigo, and ringworm; these four were found in the schools no less than 6,428 times, or 55 per cent of all the skin affections reported. There were 5,267 children with pediculosis.

CAMBRIDGE.

Cambridge. Board of health. School inspection. *In its Annual report, year ending December 31, 1910.* p. 37-41.

Signed: Bradford H. Peirce, M. D.

Concerning the school nurse see p. 40-41.

Six public school and 5 parochial inspectors; and 2 school nurses.

Number of pupils ill and defective, 1,870.

Chicken pox.....	23
Diphtheria.....	2
Eczema.....	35
Gonorrhea.....	0
Laryngitis.....	5
Measles.....	4
German.....	0
Mumps.....	6
Scarlet fever.....	2
Syphilis.....	0
Tonsillitis.....	71
Tuberculosis, pulmonary.....	3
Tuberculosis, other forms.....	1
Whooping cough.....	0

Eyes.

Conjunctivitis.....	79
Corneal ulcer or opacity.....	4
Keratitis.....	1
Strabismus.....	15
Imperfect sight.....	27

In two schools located in the same section of the city, one, rather closely surrounded, and not well ventilated, has had many cases of scarlet fever and diphtheria for several years. The other school, older and in an open space, has had but two cases of diphtheria and one of scarlet fever in more than a year.

CANTON.

CABOT, Arthur Tracy. School inspection in small towns. *In* American school hygiene association. Proceedings, 1911. Springfield, Mass., American physical education review, 1911. p. 40-43.

Also in Boston medical and surgical journal, 164: 633-34, May 4, 1911.

The town's appropriation being too small for payment for systematic medical inspection, at a town meeting in 1908, a school nurse appropriation of \$500 was made, a trained nurse to begin at the opening of the next school year. The work, which also included the parochial school, was found to be so satisfactory that for the year following, \$950 was appropriated.

The nurse looks after 900 children; makes examinations at beginning of year, keeping card record; keeps record of any illness they have; children with any infirmity of eyes, ears, throat or general condition, are referred to their physicians; children requiring specialist's aid are taken by her to a public clinic in Boston. She gives hygiene talks in the schools, and visits the homes. "We have found the work of the school nurse thoroughly satisfactory in giving the town what seems adequate inspection and control of contagious disease."

The neighboring town of Norwood adopted same system; Milton, planning the same.

WELLESLEY.

CANAVAN, Myrtelle M. Medical data of the examination of 2,333 supposedly normal adult young women. *In* American school hygiene association. Proceedings, 1912. Springfield [Mass.] American physical education review, 1912. p. 76-91. tables. record blanks.

The physical examination system of Wellesley college; data covering examinations from 1906 to 1911; average age of students, 19 years.

Percentages of orthopedic defects.

	Per cent.
1. Back, curvature.....	35
2. Shoulders, uneven.....	53
3. Hips, uneven.....	43½
4. Legs:	
(a) Knock-kneed.....	21
(b) Bow-leg.....	8½
(c) Unequal.....	½
5. Ankles pronated.....	70½
6. Longitudinal arches:	
(a) Flat.....	12
(b) High.....	5
7. Anterior arches, flat.....	11½
8. Toe joints enlarged.....	3½
Deaf or partly so.....	2½
Nose, hypertrophy of turbinate.....	13
Tonsils enlarged.....	28½

While 17½ per cent had had throat operations, and 15 per cent of these, for removal of tonsils or adenoids, tonsils were found enlarged in 28 per cent.

	Per cent.
Eye lesions.....	12½
Glasses worn.....	37
Nutrition poor.....	19
Teeth:	
(a) Missing.....	12½
(b) Cavities.....	4
(c) Poor or irregular.....	1
Menstrual disorders.....	23
Enlarged lymph nodes.....	12
Heart lesions:	
(a) Organic.....	3
(b) Murmurs, no symptoms.....	17½
(c) Other lesions.....	8
Sports:	
(a) Qualified.....	56
(b) Disqualified.....	3

Unusual lesions for the most part are stigmata of degeneration, 24 different sorts.

WORCESTER.

EMERY, George E. Medical inspection in two Worcester schools. Pedagogical seminary, 17: 111-18, March 1910. tables.

"Fifteen inspectors were appointed in Worcester by the board of health and began work in October, 1906.

"Our duties were to inspect such children as were referred to us by the teachers, and make weekly reports of such inspection.

"October of this year [1909] blanks were furnished by the board . . . and a systematic inspection of all the pupils was begun. The tests for sight and hearing are conducted by the teachers, but . . . they are by no means complete and many of the record cards show normal vision when serious defects are really present. . . . There is no test card for astigmatism. . . .

"In the fifth grade only 34 per cent had enlarged glands. . . . In the sixth grade 90 per cent . . . and for the whole school 55 per cent. . . . The general nutrition of the pupils is . . . 63 per cent good, 32 per cent medium and only 4 per cent poor. . . .

"I was not surprised that a large number should have poor teeth; but I was surprised that the average number per pupil should be so high; that is eight in the first grade and nearly four in the ninth grade. . . .

"The school nurse should be the link between the school and the home, but in Worcester that link is missing. . . . The district nurses do help but . . . can give but little time to this work."

MICHIGAN.

Grand Rapids. Board of health and Poor commissioners. Report of School examiner. In their Annual reports, year ending March 31, 1911. tables.

Inspection for physical defects was ordered discontinued by the board of health, on December 6, 1910, and inspection is now made for contagious diseases only.

The following is a report of work from May 1, 1910 to April 1, 1911:

Contagious diseases discovered.

Itch.....	7
Whooping cough.....	22
Measles.....	418
Typhoid fever.....	1
Scarlet fever.....	17
German measles.....	52
Mumps.....	28
Chickenpox.....	23
Smallpox.....	2
Total.....	570

Physical defects discovered (May 1, 1910, to December 1, 1910.)

Glandular.....	1
Nervous.....	2
Stomach.....	1
Hernia.....	1
Defective teeth.....	11
Deformities.....	1
Hypertrophied tonsils.....	45
Ear trouble.....	1
Adenoids.....	3
Skin trouble.....	4
Total.....	70

The total number vaccinated was 245. The acting school examiner is Leland H. Gilleland.

KIEFER, Guy L. Medical inspection of school children. Dental summary, 31: 264-68, April 1911.

In Detroit, 50,501 children were examined by the medical school inspectors; 3,499 excluded for contagious diseases; 818 cases of tonsillitis; 12, of scarlet fever. Physical defects were found in 2,118 pupils: Of these 598 had defective eyesight; 204, diseased eyes; 136, defective hearing; 906, enlarged tonsils or adenoids, or both, and 210 had defective teeth.

Beginning October 23, 1909, to May 7, 1910, the Detroit district dental society, in its free dental clinic, attended to 234 children.

MARTINDALE, W. C. How Detroit cares for her backward children. Psychological clinic, 6: 125-30, October 15, 1912.

"In the fall of 1910 the department of special education was organized and the nine special rooms, the school for cripples and schools for stammerers, were placed under the direct supervision of the general supervisor."

Binet-Simon tests are used to determine the mentality. If no results follow notification to parents the school principal calls upon the regular school physician to make a physical examination of the child, to ascertain if the backwardness be due to defective vision, defective hearing, adenoids, enlarged tonsils, or nervousness. The principal reports result to parents; if parents are unable to provide the needed medical attention, the principal reports the case to the child study committee; upon note from the secretary of the committee, Detroit's best specialists give free assistance to the children. Where children can not afford spectacles, they are provided through fund set aside by the Detroit teachers' association.

Since September, 1911, 215 pupils have been tested for defective vision and provided with glasses.

After the child's physical defects have been remedied, if his mental condition still remains unchanged, the Binet examiner, appointed by the board of education, then visits the school and gives him the Binet test. The special physician, appointed by the board of health to work under the direction of the board of education, visits the school and makes a physical examination of the child. "The statement of the parent as given in the report sent to the secretary of the child study committee by the principal, together with the child's school history, reports of the Binet examiner and of the school physician are then passed upon by the child study committee.

"In the cases of low grade children whom the committee thinks it advisable to exclude, a second examination is made . . . by one of the mental specialists of the child study committee consultation staff . . . and usually results in the exclusion of the child. . . . Since September, 1911, 468 cases have been examined. The committee recommended 190 of this number to the special rooms."

MAY, George A. The result of one thousand nose and throat examinations. American physical education review, 14: 636-44, December 1909.

Examinations made at the Waterman gymnasium, University of Michigan.

There were found in 1,000 students, mostly freshmen, 157 deviated septa; nasal spurs and ridges, 398; adenoids large, 36, moderate, 145; chronic tonsillitis, 4; lacunar, 8; chronic tonsillar inflammation with hypertrophy, 191 cases; symptoms of frequent nasal bleeding, 170; 85 without accountable etiology; simple chronic rhinitis, 54 cases; atrophic rhinitis, 12; larynx, acute inflammatory conditions, 105. Eighty-three complained of more or less chronic hoarseness. There were 38 hay fever cases. Seventy-six gave a history of some nose and throat operation.

The main object of the paper is to point out the necessity of an examination of this character. The ideal time for such would be the childhood period.

WARTHIN, Aldred Scott. Thy physical health of the University. Michigan alumnus, 16: 70-73, November 1909.

The University of Michigan.

"At the beginning of the present college year the department of medicine and surgery adopted methods tending towards a better physical knowledge of the medical students particularly with reference to the occurrence of tuberculosis. Each medical student is to report once a semester to the department of internal medicine for an examination. . . . The need for such systematic examinations has been strikingly shown in the medical department. For the last four or five years 3 to 6 cases of tuberculosis have been discovered annually in the junior and senior medical classes—about 4 per cent of the class on an average. . . . Very few cases are discovered in the freshman or sophomore years. . . .

"Out of 200 women examined [in the gymnasium] the examiner discovered 8 suspicious cases, 6 of which gave positive evidence of incipient tuberculosis."

MINNESOTA.

MINNEAPOLIS.

Minneapolis. Board of education. Report of the Supervisor of hygiene and physical training. In its Annual report, year ending June 30, 1911. p. 89-94 (98)

Signed: Charles H. Keene, M. D.

January 1, 1911, a system of medical inspection was inaugurated, conducted by seven physicians and seven nurses. During the five months medical inspection has been in operation, 19,082 inspections made, 7,102 being physical examinations. Of those, 72 per cent were found defective; most common defect, hypertrophied tonsil, 35 per cent of those examined having this defect; 32 per cent, defective teeth; 28 per cent, adenoids; 24 per cent, enlarged glands; 18 per cent, defective vision; 11½ per cent of anemia; 6½ per cent, malnutrition; 3,873 cases have been treated, "who would not otherwise have received treatment."

ST. PAUL.

MEYERDING, H. A. School health. *St. Paul medical journal*, 14: 246-55, May 1912.

General summary. Medical inspection in St. Paul, p. 248-250, 252. Page 253 contrasts conditions between two schools; one among a foreign-born and laboring-class population and the other "one of the best from a social standpoint."

	Witt school (good social class).	Harrison school (labor class).
	<i>Per cent.</i>	<i>Per cent.</i>
Requiring dental attention	40	82
Malnutrition	19	20
Uncleanliness	2	10
Skin disease	11	5

¹ Less than.

St. Paul. Board of school inspectors. Medical inspection. *In its Annual reports*, school years ending June 9, 1909, and June 10, 1910. p. 57-59. illus.

Department of medical inspection established along lines outlined by the superintendent of schools. One physician employed to give three hours each day from 9 to 12 to the schools and to maintain office hours from 9 to 12 on Saturdays at the school board rooms. He began his work with one nurse assistant and later three nurses were assigned. Medical inspection entirely under the school authorities' supervision. "Our experience strengthens the conviction that it should always be so. . . .

"The medical inspector shall make recommendations on matters affecting the physical environment of children such as the building lot, the drainage, heating, plumbing, ventilating, water supply, drinking facilities, sweeping, scrubbing, use of disinfectants, deodorizing, fumigating, etc.

"He shall go from building to building and shall make systematic examination of all pupils in the elementary schools reported to him by teachers and principals and such other pupils as may appear to him physically defective.

"He shall be accompanied and assisted in all his work by a school nurse who shall record all findings, and report to parents. The medical inspector shall not be permitted to give any treatment to children except temporary assistance, or in cases of emergency. . . . The medical inspector shall also send notice to the parents or guardians of pupils lacking in cleanliness or needing treatment; he shall be authorized to exclude pupils. . . .

"He shall give such instructions to principals and teachers as will make them familiar with the more conspicuous symptoms of physical and mental deficiency, to the end that they may suggest only those who are really abnormal to the inspector for examination. He shall give instruction to teachers, respecting vision and hearing tests, and on such matters relating to the physical inspection of children as will promise the assistance and cooperation of teachers and principals in the work of his department."

During the school year 1909-10, a systematic examination of 3,265 found 2,066 behind grade; 28 per cent of them backward in studies because of physical conditions

The following is a summary of the work of two nurses:

	Total.
Rooms inspected	343
Contagious diseases discovered	170
Communicable diseases (not contagious)	243
Surgical dressings and treatments	182
Pediculosis	669
(Cured, 442.)	
Taken to dispensary or doctor	482
Defective vision, attention received	203
Defective vision, glasses secured	144
Defective nose and throat, attention received	270
Defective nose and throat, operated upon	103
Malnutrition	118
Enlarged cervical glands	25
Pulmonary diseases, attention received	9
Tubercular diseases, attention received	8
Heart disease, attention received	20
Teeth, use of brush taught	2,000
Teeth, attention received	220

MISSOURI.

St. Louis. Board of education. Department of school hygiene. In its Annual report, 1909. p. 176-88.

History of the St. Louis department of school hygiene. Work to begin opening of school year, September, 1909.

The supervisor of hygiene is required to be a skilled physician. He must devote his entire time to the work of the department. The inspectors must be graduates of medical colleges of recognized standing, and devote themselves to this work for ten months in each year. They must during all school hours be engaged in their investigations in the school buildings, and during the school term use such further time as shall be required for making the necessary examinations and reports. Supervisor and inspectors must not treat any case of physical defect or disease that has been discovered by them while engaged in the work of the department. The work must be conducted under such further regulations as may be prescribed by the superintendent of instruction with the approval of the board of education. Bacteriological laboratory to be opened in board of education, or in some school building, and to be equipped with necessary instruments and supplies.

St. Louis. Board of education. Department of school hygiene. In its Annual report, 1910. p. 199-213; 314-16. tables.

The school year of 1909-10 saw the first actual work of the department of hygiene. A supervisor and five inspectors were authorized by the board of education on February 9, 1909.

"When the inspector arrives at a school, he at once notifies the principal, who, in turn, through a monitor, informs the teachers that the inspector has arrived and he is ready to care for reported cases.

"The teacher having previously filled out the teacher's diagnosis card, Form 11-C [form follows], sends the child with this card to the inspector. The inspector makes his examination and enters his diagnosis on this card and fills out, in duplicate, Form 11-A [form follows]. He instructs the child to deliver the card . . . to the parent or guardian.

"If a child is found to be suffering from a contagious or infectious disease, he is at once excluded and the city health department is notified on the form . . . [form follows]. This terminates the relation of the department of hygiene with the child until he or she is ready to reenter school, at which time the health department notifies us . . . that quarantine restrictions have been raised. The child is reexamined by the inspector of hygiene. . . .

"In case of . . . physical defect, the diagnosis card [Form 11-C] is set back a certain number of days in a follow-up file and at that time the pupil is reexamined and his condition . . . entered upon the card.

"The cases of noncommunicable disease are handled in the same manner as the cases of physical defects except where . . . a menace to the other children. The pupil suffering from such a disease is excluded until, in the opinion of the inspector, he may properly return to school."

Each school in the city has an emergency surgical chest. For absence of three days, the teacher reports to the inspector of hygiene for her school; he tabulates all the reports from the same school and reports them to the health department, filing a duplicate with department of hygiene. On receipt, the health department district inspectors visit the homes of children so reported and report back, to the principal and inspector, the cause of the child's absence; the case is followed up by the attendance department, if the cause is other than illness. The health department makes a daily report to the department of hygiene of all contagious diseases reported to it. During the summer of 1909 a record of all such cases was kept by the supervisor of hygiene, and a letter was sent to the infected homes and to the principal of the school in the district in which these homes were located, requiring the children to be examined by the assistant health commissioner, or by the department of hygiene, before admission to school. Principals were directed to refuse admission unless the child brings a certificate from one of the two examining officers. The inspector makes thorough examination of all suspected contact cases for contagious diseases and these are under daily inspection. All children are examined in a school where scarlet fever has been found, the case is at once excluded, health department and the building commissioner are notified, and fumigation is made after school dismissal (p. 206-209).

See also Report, 1911, p. 141-160 (Regulations and work of the six school nurses added to the department of school hygiene, and cards).

NEW JERSEY.

HOLMES, George J. Educational hygiene and prophylaxis. New Jersey. Journal of the medical society, 9: 223-31, October 1912.

Newark requires the medical inspector "to devote two hours each day, the hours of service to be at the convenience of the school authorities."

Cost to run the department of medical inspection in 1909-10 was 31 cents per pupil; in 1910-11, 41 cents per capita. The increased cost was justified by results: Forty thousand fewer days were lost by quarantine in 1910-11 than in the previous year, and a decrease of 80 per cent in the number of buildings in the city quarantined in 1910-11 than in 1909-10; in 1910-11 there were 36,669 more inspections

made by the department, with 843 fewer exclusions, and the 15,626 more physical examinations show a gain in amount of work and character of same.

"During 1910-11, 24,310 physical examinations were performed—61½ per cent of this number were found to have one or more defects and 38½ per cent were found normal.

"Chief among the defects are:

	Per cent.
Enlarged glands.....	3
Defective vision.....	20
Defective hearing.....	2
Defective nasal breathing.....	7
Defective teeth.....	47
Enlarged tonsils.....	30
Adenoids.....	12
Mentality (percentage based on number found defective).....	2

"Were I asked to establish medical inspection in a city . . . I would employ first of all, sufficient trained nurses to carry on the major part of the work. The only part of medical inspection that cannot be conducted by nurses trained in school work is the examination of the heart and lungs. . . .

"I would have these nurses under the direction of a trained physician who should be expected to devote the entire day, from 9 to 5, to school work. Medical inspection should not be carried on in public schools as a necessary evil, but as an indispensable benefit."

LAMSON, William J. The medical inspection of schools. Medical society of New Jersey. Journal, 7: 569-72, April 1911. tables. form.

Duties of a medical inspector, as adopted by the New Jersey State board of education, October 5, 1909, are as follows:

"1. He shall use the same skill in examining pupils as he would in the case of private patients.

"2. He shall arrange his visits to the school to suit the convenience of the school authorities and his own private work. He shall respond to emergency calls as quickly as possible.

"3. He shall make regular inspections: (a) In rural districts at each school at least twice a month; (b) in villages and small towns at least once a week; (c) in towns and cities at least three times a week, and in crowded cities daily.

"4. At the commencement of each school year he shall make a thorough physical examination of each pupil, and record his findings on cards assigned for this purpose: (a) Eyes, for farsightedness or near-sightedness, color blindness, squint and roughly for astigmatism, also the condition of the eyelids; (b) ears, for acuteness of hearing, adenoids, discharge; (c) throat, for enlarged tonsils, adenoids, nasal deformities or discharges; (d) teeth, condition and care; (e) deformities, spine, limbs, etc.; (f) skin, eruption, condition of scalp; (g) when practicable measurements, height, weight and chest measures; examination of heart and lungs.

"5. He shall exclude cases of contagious diseases, and send a written statement of conditions found.

"6. He shall from time to time examine into the sanitary conditions of all schools in his district.

"7. Any special work, such as frequent extra visits, vaccination or fumigation, shall be arranged for by mutual agreement between the board of education and the inspector."

MACDONALD, Joseph, jr. The object and intent of medical inspection of school children. New Jersey. Journal of the medical society, 9: 231-34, October 1912.

To be accomplished—

"First. By the appointment of a State medical school inspector as a member of the State board of education.

"Second. By the preparation of uniform blanks by the State board covering individual record cards for yearly examination; recommendation cards for treatment and exclusion cards for infectious or communicable diseases.

"Third. By requiring that duplicate reports shall be sent by the school inspectors to the school boards they are serving, and to the State board at Trenton; thus with other essential details . . . a most important department could be built up that would prove not only a great saving in expense to the community, now expended in carrying along physically deficient pupils, but would give us a stronger race of men and women physically and mentally."

Newark. Board of education. Report of Supervisor of medical inspection. *In its Annual report*, year ending June 30, 1911. p. 211-21. tables.

Comparative table of medical inspection in Newark public schools from 1901 to 1911, inclusive, p. 212.

	Total ex- amined.	Physical examina- tion.
1901.....	5,585	.....
1902.....	9,819	.....
1903.....	6,803	.....
1904.....	8,529	.....
1905.....	8,076	.....
1906.....	43,546	.....
1907.....	21,299	.....
1908.....	37,937	.....
1909.....	58,367	4,582
1910.....	172,550	9,045
1911.....	208,209	24,670

	1909-10	1910-11
Defective vision.....	1,380	3,003
Defective hearing.....	359	396
Defective teeth.....	2,265	7,124
Hypertrophied tonsils.....	1,800	4,588
Post nasal growth.....	596	1,866
Mentality.....	166	339
Total defective.....	5,908	14,954

Faterson. Board of education. Report of the Visiting nurse. *In its Annual report*, year ending June 30, 1910. p. 72-73. tables.

Inspection of School no. 4: Inspection begun of each child in the first fifteen classes of this school, April 12, 1910. Total number examined, 579.

Defective teeth treated..... None.

(72 per cent had defective teeth.)

Pediculosis.....	210
Hypertrophied tonsils.....	45
Minor skin diseases.....	25
Defective nasal breathing.....	23
Defective vision.....	16
Trachoma.....	3
Defective hearing.....	13
Bad nutrition.....	7

REBER, C. E. Abnormal school children. School exchange, 3:25-29, October 1908. tables.

A statistical résumé of examinations, 1908, made on various types of school children, both normal and feeble-minded. Discusses chiefly the retarding effects of adenoids upon body-growth, spine, vocal organs, teeth, palate, and mentality—"feeble-mindedness is more likely to be the effect of adenoids, and the causes that bring them about than that adenoids are the effect of feeble-mindedness. . . . Adenoids are a defect of civilization."

Trenton. Board of education. Medical inspection. *In its Report*, year ending August 31, 1909. p. 45-47.

Began, January 1909. Six physicians and a school nurse appointed. Each pupil made the subject of a thorough yearly examination. A sanitary inspection of the school buildings, classrooms, grounds once each month.

Reports for six months give the number of examined as 6,346; called to inspect different cases, 3,000.

Examined by teachers.

	Defective.
Vision..... 3,132	1,352
Hearing..... 1,482	152

	<i>Examined by inspectors.</i>	<i>Defective.</i>
Heart	5,664.	92
Lungs	5,676.	80
Throat	5,345.	853
Naso-pharynx	5,337.	677
Nasal-septum	5,347.	204
Teeth	5,346.	2,174
Adenoids		229
Enlarged tonsils		916
Anemic		63
Debility		100
Catarrh		100
Eczema		41
Impetigo		63
Conjunctivitis		55
Strabismus		29

NEW YORK.

BAKER, Sara Josephine. Medical inspection and examination of school children. . . *In her* The Division of child hygiene of the Department of health of the city of New York. p. 61-93. illus. charts. tables. (City of New York. Department of health. Monograph series, no. 4, September 1912)

Vaccination of school children, p. 89-93:

"The conditions revealed as a result of these physical examinations were of sufficient importance to attract the attention of the health authorities to the necessity of more complete control of the health of the child during its school life. The postal card notifications resulted in obtaining medical care for only about 6 per cent of the physically defective children. It may readily be seen that, while such a system has value in definitely determining the physical condition of the children in the schools, the records soon amount to little more than the mere compiling of statistical data unless some definite and systematized effort be made to see that the children obtain proper medical care.

"It was the recognition of this fact that instigated the studies which resulted in the organization of the division of child hygiene. With its formation, and the appointment of a largely increased staff of trained nurses, it became possible to have the nurses visit the physically defective children in their homes in order to induce parents to provide proper treatment. This system of home visits by the nurses was inaugurated on September 15, 1908. As a result of their efforts, during 1909 83 per cent of the physically defective children obtained treatment, as opposed to the 6 per cent under the former system. The entire system as outlined was carried on with excellent results until January 1, 1912.

"Previous to this time it was recognized that, with a visit to each school each day by a medical inspector and a nurse, there was a certain duplication of time spent which might be eliminated with resulting financial economy. Experiments were carried on in two groups of schools during a period of three months in the spring of 1911 to determine the relative economy and efficiency of placing the control of contagious diseases in the schools in the hands of the school nurse, leaving the medical inspector free to devote his entire time in the schools to making physical examinations of the children. The experimental study having shown that such a system was feasible, it was inaugurated on January 1, 1912.

"The complete system of school medical inspection is carried on in 517 public schools with a registered attendance of 684,207 pupils. In addition, 151 other free schools of the city receive a more or less complete series of inspections for the purpose of detecting contagious diseases. Seventy-four medical inspectors and 179 nurses are detailed to the work of school medical inspection under the immediate supervision of the staff of supervising inspectors and supervising nurses in each borough. Each inspector is assigned to duty in a group of schools with an average registration of 9,000 pupils. Each nurse is assigned to duty in a group of schools with an average registration of 4,000 pupils.

"Each public school in the city is visited each day by a nurse, except in certain outlying and sparsely populated districts where visits are made at less frequent intervals. Other free schools are visited upon request, or regularly once or twice weekly.

"*Routine inspection.*—1. At the beginning of each term each medical inspector makes a routine classroom inspection of each child in the schools under his charge.

"Thereafter the nurse makes a continuous routine class inspection of each child in the schools under her charge, following the same procedure.

"2. All cases of disease found are recorded on a special class index card, with the data in appropriate columns. A card or cards is made out for classroom, and the index kept in an accessible place in each school. Further data regarding each case is recorded on this class index card. Code numbers are used to indicate the kind of disease.

"3. All contagious diseases found are dealt with as described under the heading 'Morning inspection.'

"4. When a child is found to be affected with a marked form of physical defect, the particular defect is noted and the child referred to the medical inspector for a physical examination.

"5. All children ordered under treatment are referred to the school nurse and are thereafter controlled as described under the heading 'Morning inspection.'

"Emergency cases.—In the absence of the inspector all emergency cases are treated by the nurse in the school whenever other treatment is not available. Such cases are thereafter referred to the parents for future care.

"THE DIAGNOSIS AND CORRECTION OF NON-CONTAGIOUS UNTREATED PHYSICAL DEFECTS.

"1. The medical inspector visits each school under his jurisdiction for two successive days. A regular schedule is maintained, and the principals of the schools are thus informed of the dates of the inspector's visits. The principals are requested to instruct the children to report, in small squads, to the inspector for physical examination.

"2. Examinations are made in the following order: First. Children entering school for the first time; Second. Children especially referred by the principals or teachers; Third. Children belonging to the class to be graduated; Fourth. In the regular course, beginning with children of the lowest grades, and proceeding to the higher grades in regular order; Fifth. Classes of the same grade are examined in regular order in each school of the group.

"3. Each child is thoroughly examined for the following conditions: Defective vision, defective hearing, defective nasal breathing, hypertrophied tonsils, tuberculous lymph nodes, defective teeth, malnutrition, pulmonary disease, cardiac disease, chorea, orthopedic defects.

"4. A complete record of each physical examination is made on a special form. If a child is normal, the inspector sends such a report to the borough office of the division. If abnormalities are found, the record form is given to the school nurse.

"A duplicate record of each child's condition is also placed on file with the child's school record, thus affording to the educational authorities the fullest information in regard to the child's physical condition, and enabling them to take advantage of this information in adjusting the individual curriculum.

"The nature and results of the treatment obtained for each defect are thereafter noted upon this school record form by the nurse.

"5. Each defective child is given a copy of an appropriate form, properly filled out, to take home to its parents.

"6. If at the end of three days no notice has been received from the parents that the child is under medical care, and if the child shows no evidence of such care, a notice is signed by the principal and sent to the parents.

"7. If the parent calls at the school, as suggested, the inspector or nurse explains the nature of the defect and the need of treatment; if the parents do not respond within three days, the nurse visits the home and explains to the parent the character of the defect, the need of treatment and the beneficial results that may reasonably be expected to result from medical care. Repeated home visits are made by the nurse until treatment is provided or an absolute refusal is encountered.

"8. When parents are willing to have their children treated but are unable to pay a private physician and by reason of home duties or occupation cannot spare the necessary time to obtain treatment, the nurse takes the child to a dispensary, after the parent has signed a request to that effect.

"9. When treatment is obtained or refusal is met, the nurse records on the regular physical examination form and the school record form the character of the treatment. The first form is mailed to the borough office of the division, the second remains on file in the school.

"10. After the child has obtained treatment, it is again examined by the inspector, who records the improvement or non-improvement on the school record form and on the special form forwarded to the borough office of the division.

"Every effort is made primarily to refer those children who require treatment to the private family physician. If there is no private family physician and if, furthermore, the family is unable or unwilling to employ a private physician, the child is then referred to a dispensary or hospital for treatment.

"Inspectors and nurses are required to consult with the school authorities regarding the matters pertaining to school environment or the curricula which may have a bearing upon the health of the child.

"There are in the city of New York only 19 free dental clinics. Of these, only one is maintained wholly for the treatment of school children. This clinic is supported by a group of philanthropic citizens. The remainder of the clinics are connected with dental colleges or dispensaries, and provide treatment for adults as well as children. Only a few of these clinics fill teeth, and extraction is done in the majority of the cases of children who are able to obtain treatment. . . .

"The need of free dental clinics is acute, and the department of health has asked the board of estimate to include in the departmental budget for 1913 an appropriation sufficient to employ 15 dentists and 8 nurses to allow the establishment of school dental clinics under the supervision of the division of child hygiene.

"*Clinics for School Children.*—It has been felt by the department that the test of the value of the system of school medical inspection was the character and results of the treatment obtained by the children. In order that the existing need for more facilities for treating the children might be met, and that the character of treatment given and the adequacy of results might be under control, the department has obtained in its budget for 1912 funds for the establishment of six clinics under the supervision of the division of child hygiene, exclusively for the treatment of school children. Statistical data of these clinics can not yet be given, owing to the short time they have been in operation.

"The location of the clinics is as follows: *Borough of Manhattan*—341 Pleasant Avenue; Gouverneur Slip. *Borough of Brooklyn*—330 Throop Avenue; 1249 Herkimer Street; 124 Lawrence Street. *Borough of the Bronx*—580 East One hundred and sixty-ninth Street.

"These clinics are open from 2 to 5 p. m. on school days, and from 9 to 12 a. m. on Saturdays. Each clinic has the following service: (1) Eye diseases: (a) Contagious eye diseases; (b) refraction. (2) Nose and throat diseases. (3) General medical diseases. (4) Skin diseases.

"The service at 341 Pleasant Avenue includes hospital wards of 14 beds and facilities for operations on trachoma, adenoids, and hypertrophied tonsils. Similar hospital service will shortly be ready at 330 Throop Avenue, 1249 Herkimer Street, and 580 East One hundred and sixty-ninth Street.

"The children are referred by the school nurse directly to the clinic, a special form of reference card being used. After the child reports at the clinic, the nurse assigned to duty at the clinic follows up the case, making home visits whenever necessary to see that the child remains under treatment until discharged."

BAKER, Sarah Josephine. The value of the municipal control of child hygiene. *American journal of obstetrics and diseases of women and children*, 65:1061-68, June 1912.

"In New York City since 1908, 727,750 children in the public schools have received a complete physical examination. . . . An average of 40 per cent were found to have one or more associated physical defects . . . with or without the most common defect that we find, namely, defective teeth. Thirty-five per cent of the remainder . . . were found to have defective teeth as the only physical defect. . . . In the schools alone the efforts of the division of child hygiene have resulted in an immense gain in school time for those children who were affected with contagious eye and skin diseases, the necessary exclusions; . . . for these reasons being reduced from over 57,000 in 1903 to slightly over 3,000 in 1911. . . .

"It has been alleged that the assumption by the city of the responsibility for the health of school children has made serious inroads upon the practice and income of private physicians. In order to ascertain the exact conditions . . . I have had tabulated for . . . 1911 the various sources from which children have received treatment. During that year, of the 65,150 children, 37,986, or 58 per cent, were treated by private physicians or dentists, while the remainder 27,164, or 42 per cent, were under the care of hospitals and dispensaries. . . .

"This work in the schools, with its control of the contagious disease situation, with the elimination of the school as the main focus of infection; the physical examination of each child as soon as it enters school, before it is allowed to graduate and as nearly as possible every two years in the interim; the instruction of the parents . . . and the follow-up work . . . was performed during 1911 at a per capita cost of \$0.43."

BLAN, Louis B. Are we taking proper care of the health of our school children? *Pedagogical seminary*, 19:220-27, June 1912. tables. chart.

Writer records visit made in company with a school physician on a routine round in New York City.

"In one school, attended by 2,000 pupils, the visiting physician waited patiently for a report of sickness from the various classes. There was not one report of illness or a single case for medical investigation. This seems almost incredible. If this number of children had been previously examined surely some of them would need medical attention. . . . In another school . . . not one case of cardiac ailment was reported. In point of fact . . . two of these children had heart disease.

"In one case . . . 'pulmonary trouble' was registered on the health card but no medical attention . . . had been given. The case had been recorded three weeks prior. . . .

"In none of the schools of New York City has there ever been recorded a complete general history of the child.

"Bronchitis cases are never examined or attended. . . .

"There is not time enough to make adequate physical examinations. Each physician covers the ground assigned . . . in less than three hours and is paid little for the work he is doing.

"No complete physical examination of the entering or enrolled elementary school pupils to ascertain the health conditions of their vital organs has as yet been suggested.

"Actual number of deaths among New York City school children between ages 5-15, during year 1910-11 (*in part only tabulated*):

	Male.	Female.	Per cent of total deaths.	
			Male.	Female.
Tubercular disease (pulmonary).....	132	203	9.1	14.5
Cancer.....	6	8	.....	.....
Nervous (sense organs).....	88	75	6.1	5.4
Circulatory (heart).....	127	195	8.8	13.9
Respiratory.....	144	169	10.0	12.1
Digestive (intestines, stomach, etc.).....	118	104	8.2	7.4

"This pitiful list of victims . . . demands serious and immediate attention. All entering pupils should be required to present certificates of medical examination as to the general and specific organic condition of their health, or else be compelled to undergo such examination before they are admitted to school."

In an emphasizing paragraph to this report, Dr. Luther Halsey Gulick says: "In general the medical inspection of school children in the United States is not having adequate results. A rather wide observation indicates that not one-quarter of the children who need medical attention get it. In most of the cases examinations are made and the diagnosis recorded on a card and filed away for future reference, but nothing actually happens to the child as a result of the examination." The writer sets forth a number of causes for this trouble. In the first place the doctors are young and inexperienced. "In practically all cases, medical inspection is a doctor's secondary interest. . . . He has no intention of finding a career in medical inspection of school children. . . . The salaries . . . are absurdly small; the mean salary being about \$300 per annum. . . ."

"The work demanded of a medical examiner . . . is not the work for a beginner in medicine. It is the work of a highly trained, long experienced specialist. . . . There are not enough doctors to give either adequate or sufficiently frequent examinations. . . . There are not enough nurses to see to it that the prescriptions of the doctors are carried out. Without school nurses, medical inspection is of relatively little value."

New York academy of medicine. A Report upon the health conditions in the public schools of New York City. By the Committee on Public health, hospitals and budget of the New York academy of medicine. Medical record, 82:406-12, August 31, 1912. tables.

Executive-secretary, E. H. Lewinhardt-Corwin.

Reprinted.

Study made: "1. To summarize the present methods of safeguarding the health of school children. . . . 2. To analyze these methods and their results from a strictly medical point of view. 3. To enlist the interest and cooperation of the medical profession as a whole in the problem of school hygiene. 4. To give medical advice and assistance to the Departments of health and education in their efforts to solve these problems. 5. To support the reasonable demands of these departments for sufficient city funds to maintain proper health conditions in the public schools."

Physical examination for noncontagious defects.

Number examined:

1911.....	230,243
1910.....	206,428
1909.....	251,681

	1911		1910		1909 ¹	
	Found defective.	Per cent.	Found defective.	Per cent.	Found defective.	Per cent.
Needing treatment.....	166,886	72.2	166,064	78.8	172,112	74.4
Found with defects other than teeth alone.....	75,857	32.9	101,602	38.1	102,150	44.2
With defects of teeth as only defect.....	90,511	39.3	95,062	35.6	69,962	30.2
With defective vision.....	24,514	10.6	29,634	11.1	30,408	12.1
With defective hearing.....	1,491	.6	1,519	.5	2,340	1.0
With defective nasal breathing.....	27,316	11.8	40,946	15.3	43,393	18.7
With hypertrophied tonsils.....	34,639	15.0	50,012	18.7	50,984	22.0
With defective nutrition.....	5,845	2.5	8,691	3.2	7,249	3.1
With pulmonary disease.....	483	.2	656	.2	744	.3
With cardiac disease.....	1,651	.7	2,370	.8	1,503	.6
With orthopedic defects.....	1,190	.5	1,683	.5	1,461	.6
With chorea.....	861	.3	961	.6	940	.4
With defective teeth.....	135,843	58.1	164,250	61.6	131,747	57.0
With defective palate.....	85	.....	153	.....	324	.1
With tuberculous lymph nodes.....	418	.2	759	.2	810	.3
Reported treated ²	65,150	26.0	64,861	24.0	84,968	33.0

¹ Monthly bulletin of the department of health for April, 1912, p. 101.

² These figures do not include children reported with defective teeth as the only defect, whose treatment consisted only of instruction in oral hygiene.

Communicable diseases of the eyes and skin.

Year.	Trachoma.	Conjunctivitis.	Ring-worm.	Impetigo.	Scabies.	Favus.	Pediculosis.	Molluscum contagiosum.	Miscellaneous.	Total.
1909.....	45,616	49,807	7,788	12,516	4,006	409	151,585	154	14,621	286,591
1910.....	20,888	26,885	9,022	2,251	.....	290	183,797	143	41,660	263,828
1911.....	15,246	24,941	4,088	7,713	1,708	230	123,045	96	11,660	248,771

Attention is called by the committee to the elements of the health conditions in public schools. The health work in the schools consists in: (1) Medical examination of school children for contagious and non-contagious defects. (2) The elimination of children found suffering from contagious diseases. (3) Calling of parents' attention to the defects of their children. (4) Direction of children to physicians and dispensaries. (5) Following the children up to see whether they received treatment. (6) Treatment in schools. (7) Instruction in personal hygiene. (8) Physical training instruction. (9) Segregation of backward and mentally defective children. (10) Sanitary care of schools.

The cost of inspection for the detection of contagious diseases amounted to \$0.57 per 1,000 children inspected; the cost of each physical examination amounted, on an average, to \$0.097, and the cost of the home visits of the nurses averaged as high as \$0.60 for each case.

School work, 1912.

76 medical inspectors, at \$1,200 per annum.....	\$91,200
172 nurses, at \$600 per annum.....	103,200
6 additional inspectors, i. e., supervisors, at \$1,200 per annum.....	7,200
10 additional nurses, i. e., supervisors, at \$600 per annum.....	6,000
4 medical inspectors (for physical examination of children for employment certificates), at \$1,200 per annum.....	4,800
	267,000

The following is a summary of the reports of four borough chiefs, 15 medical supervisors, and 14 supervising nurses with regard to the present system of medical inspection of school children. The disadvantages of the 1912 system are discussed at length.

"*Morning inspection for contagious diseases.*—The reports are unanimous in disapproving of nurses diagnosing and excluding contagious cases, for the following reasons:

"(1) Their training has not fitted them for it physically or mentally.

"(2) They are overworked and unable, for lack of time, to perform their other duties, especially home visits, which is the essential part of their work. According to the statement of the board of health, based on 300 cards selected at random, the amount of time devoted to home visits last year averaged three hours per nurse per day; this year the average is 45 minutes.

"(3) There is a duplication of work, because the inspectors have to visit each case excluded.

"(4) The nurses exclude many false cases, thereby causing the inspectors to waste much time in making unnecessary visits. . . . In 109 days they excluded 1,586 cases, or 16 cases a day, for 150 schools. and in 1912, 17 cases a day for 150 schools. . . .

"(5) The medical inspector is not able to keep in close touch with the school on account of the infrequency of his visits, so the 'school physician' no longer exists and the nurse can not take his place. Principals and parents naturally do not have the same confidence in her judgment that they have in the physician's."

"*HIGH SCHOOLS.*—With regard to medical inspection in high schools the following is a summary of the facts obtained, in answer to a questionnaire sent out to all the high schools of the city, some of which were visited in this connection by the executive secretary of the committee.

"(1) *For contagious diseases.*—Of the 11 schools reporting medical inspection for contagious diseases, examinations are made by physicians in 5, and by teachers or nurses in the others. In a few instances inspections are made daily and in the others only in suspected cases. Most of the schools keep no records of the number of cases detected. One, however, reports from 25 to 50, and another 31 for last year. A number of schools send the suspected cases home, only 2 reporting that the board of health is notified. On the whole, responsibility is left with the class teachers, who are often indifferent and ignorant in this respect.

"The daily list of contagious sick reported to the board of health is too long for the teachers to go over every morning, and as a rule little attention is paid to it.

"(2) *For vision and hearing.*—Five schools report that examinations take place either by a physician or physical training teachers once a year or once a term. All others report that no examinations are made. Only 3 of the schools reporting examinations keep records, and in them 710 cases were found defective last year. In all of the schools where examinations are made, the pupils are advised to consult a physician, or go to a dispensary. Only three schools require the students to bring from their parents an acknowledgment of the school notice as to their defects.

"(3) *For defects other than those of eye and ear.*—In 7 schools no examinations are made. In 2 only are general examinations made by a physician. In others they are made by physical training teachers. In one school the examination applies to candidates for athletics only. In the 12 schools report-

ing examinations, some inspect the students once or twice a year, some once during the school course. One school reports that examinations are made for teeth; another (Wadleigh), where a physician is employed permanently, inspects for teeth, glands, nose, throat, heart, lungs, back, skin, nervous disorders, digestion, and nutrition. Other schools do not specify the kind of examinations made. No special rooms for examinations, outside of the offices of the physical training teachers, are provided. Records are kept in all but one school. Six schools notify the parents of the defects and advise them to have the children treated by physicians and dispensaries. Seven schools give corrective gymnastic exercises.

"The number of remediable defective cases found last year was 764 out of a registration of 7,355.

"Only two schools examine for tuberculosis, and three for parasitic skin diseases. Only one school (DeWitt Clinton) keeps a record of what is being done after the defects are pointed out to the students and their parents. This school reports 50 cases of flat foot, 50 cases of scoliosis, 8 cases of hernia, 27 of bad teeth, and 8 miscellaneous ailments rectified.

"NEED OF MEDICAL INSPECTION IN PAROCHIAL AND OTHER FREE SCHOOLS.—There are more than 200 parochial and other free schools existing in this city, which are either entirely out of the pale of the department of health control, or the control is minimised, owing to the lack of funds for carrying on this work. The Catholic parochial schools alone have, according to the statement of the superintendent of the schools, made at one of the conferences on the health condition of children arranged by the committee, a registration of about 130,000. The schools do not have their own physicians, and the health control existing in them is very unsatisfactory.

"SUMMARY.

"The matters pertaining to the health and comfort of the school children are confided partly to the care of the city health department and partly to that of the department of education. The health department does this work through the bureau of child hygiene; the department of education through a number of committees.

"1. *The department of health.*

"1. The work of the child hygiene division is carried on by physicians and nurses. (1) The duties of the physicians.—The physicians make physical examinations, diagnose suspected contagious disease cases excluded from school, make absentee and other home visits. (2) The duties of the nurses.—The nurses exclude suspected contagious disease cases, make class inspections, and do follow up work in the homes.

"2. The present system differs from the original plan in several particulars: (1) The nurses exclude suspected cases daily, instead of the physicians who used to visit the assigned schools every morning for that purpose. (2) The routine class inspections are made by the nurse once a month instead of by the physician once a term as formerly. (3) The physician visits each school for two days in succession, at an average interval of about 10 days, making physical examinations and visiting the excluded and absentee cases, while last year he devoted only the time that was left after the morning inspections to physical examinations in the school last visited.

"3. Advantages of the present system: (1) It has brought about some economy of money. (2) It has markedly increased the total working hours of the staff by substituting nurses working seven hours for physicians working three or four hours daily. (3) It resulted in an increase of physical examinations made by inspectors almost double that of last year. (4) The number of treatments for physical defects received by children has increased, due to the better supervision by the increased corps of nurses. (5) The total number of home visits made by nurses has increased, although the average number of visits per nurse has decreased.

"4. Disadvantages of the present system: (1) The dissatisfaction on the part of some physicians, nurses and school principals with the innovation of having nurses exclude children for contagious diseases. (2) The loss of school work occasioned by unnecessary exclusions due to faulty diagnosis. (3) The duplication of work caused by the inspectors visiting excluded cases at their homes to confirm diagnoses.¹ (4) The infrequent visits of the medical inspector to the school instead of former daily visits. (5) The discontinuance of physicians' consultations with parents. (6) The discontinuance of medical examinations for 'working papers' at the school.² (7) The overlooking of cases of tuberculosis by nurses in class inspections. (8) The markedly decreased amount of time devoted to home-visits by nurses. (9) The diminished control of the contagious eye and skin diseases, especially trachoma.

"5. The per cent of New York school children needing treatment for physical defects is over 70, about 40 per cent are found with defects other than teeth, and as large a number suffer from communicable eye and skin diseases.

"6. The proportion of children to one nurse is 3,968, and to one school physician 8,124.

"7. The physical examinations are not thorough. The children's clothing is not removed.

¹ This is not actually very great, as during the 5 months, Jan.-June, 1911, 16 cases were excluded daily from 150 schools in Manhattan, while in 1912 during the same period the daily average was 17 for 150 schools, or 1 case to every 4 or 5 inspectors.

² Five and six entail considerable loss in the efficiency of the system.

"8. There is almost a total lack of free dental facilities for poor children.¹

"9. The cooperation of parents in following the advice of the physicians is fairly satisfactory.

"10. There is very little cooperation on the part of medical practitioners and dispensaries.

"11. The cooperation of teachers and principals varies greatly, according to the individual school. It is largely a matter of the personal interest of the teachers and principals.

"12. The high schools have almost no medical inspection or supervision for their students.

"13. The parochial and other free schools have no, or very little, medical supervision.

"II. *The department of education.*

"1. The control of the factors affecting the health of school children which are under the care of the department of education are scattered among a number of committees, so that there is no concentration of responsibility, which interferes with efficiency of administration.

"2. The various matters pertaining to the health of the school child for which the department of education is responsible are as follows: (1) The sanitary conditions of the school rooms, i. e., cleanliness, light, ventilation, and temperature. (2) Proper janitor service. (3) The detection of and provision for backward and defective children. (4) Intelligent cooperation on the part of the teachers in the detection and correction of physical or mental defects. (5) Physical training.

"3. With the exception of physical training the control of these factors influencing the health of the child is at present unsatisfactory.

"4. Physical training in the schools and the gymnasium equipment may be considered satisfactory.

"RECOMMENDATIONS.

"1. The present system of medical inspection in the schools by the department of health has not had a fair trial and should be continued for another year at least, before any definite judgment as to its efficacy can be safely reached. Meanwhile the possibility of an arrangement by which the physician, rather than the nurse, could see the suspected cases every day and also have frequent consultations with parents should be seriously considered.

"2. In addition to their present work, the school inspectors should make a routine inspection of every class at the beginning of each term in order that the control of tuberculosis and some contagious eye and skin diseases may be stricter.

"3. The average number of children per nurse and per inspector is too large at the present time. Efforts should be made to make the budget estimates on a basis of school population. In view of the prevalence of physical defects, the average proportion at the present time should be one nurse to every 2,500 children and one physician to every 7,500.

"4. Physical examinations should be made more thorough and more frequent. The children, or at least the boys at first, should be stripped to the waist at physical examinations. The present plan of examining the child when it enters school, when it graduates and once in the interim should be changed. A child should be examined when it enters school and then every two years. The examination just before graduation does not have any particular importance.

"5. In the nurses' work special emphasis should be laid on the follow up work. The burden of clerical work should be lightened. The unnecessary copying of the nurses' and physicians' record on the class card of the child should be eliminated.

"6. The salaries of the nurses should be graded. Instead of their receiving, as a uniform wage, \$900 a year, the initial wage should be \$800, after a certain period of time increased to \$900 and then again to \$1,000. The gradation will act as a stimulus to efficient work.

"7. Medical inspection should be instituted in the high schools which are entirely deprived of it at the present time.

"8. The city should appropriate money for the enlargement of the force of the child hygiene department so as to enable them to undertake the inspection of parochial and other free schools.

"9. The medical practitioners and the dispensaries should be impressed with the importance of this work to the community and be urged to cooperate. Provision for dental clinics should be made, this being done if possible through the existing dispensaries.

"10. In the department of education the responsibility for the conditions affecting the health of the school child should be concentrated. An improved organization should be worked out, which would bring under the jurisdiction of one committee the sanitary conditions in schools, the instruction of children in physical training and personal hygiene, the segregation and treatment of backward and mentally defective children, the instruction of teachers in matters of hygiene, mental defects and the commoner diseases in children, and cooperation with the health department which is a condition sine qua non for successful medical work in the schools.

"It is suggested that this might be done by extending the scope of the present division of physical training so as to include in it all of these activities, thus forming a special bureau of school hygiene.

"11. There is an urgent need of a larger corps of physicians in order to extend the facilities for the examination and study of backward children.

¹ Dr. S. A. Knopf made an investigation of the dental facilities of the dispensaries of New York City for the public health committee of the City club. He found that over 16 dispensaries have dental departments with the average number of dentists in attendance 1-3. In only three dispensaries are special hours for school children arranged so as not to conflict with school hours.

"12. An effort should be made to so modify the present system of employing and supervising janitors of school buildings that the principal of each school should have full authority over and responsibility for the work of the janitor."

New York City. City superintendent of schools. Medical examination of school children. In his Annual report, year ending July 31, 1911. p. 154-57. tables.

"Only 287,871, or considerably less than one-half of the total number of pupils in average daily attendance were examined at all. Of the 289,184 defects found, only 152,941 are reported as remedied.

"As I have frequently pointed out in former reports, the medical service rendered to the department of health is inadequate. The figures given above sustain this assertion. Only about one-fourth of the children in the schools derive substantial benefit from this service. The facts fully warrant me in again recommending that legislation be sought to enable the board of education to organize its own bureau of child hygiene. . . . Physicians employed by your board should be constantly on hand to advise regarding the school training of children suffering from physical defects, particularly nervous disorders and those resulting from malnutrition, and also with regard to the direction which the education even of normal children should take. The advice of a competent physician as to the physical ability of a boy or girl to accomplish any particular line of school work or to undertake the preparation for vocational work . . . would be of incalculable value to parents, pupils, and teachers."

SCHENCK, Herbert Dana. Medical inspection in schools and its status in New York State. North American journal of homoeopathy, 58: 644-51, October 1910.

"Of the 48 cities in the State outside of Greater New York, 31 sent in answers. Buffalo is the only city of the first class. In the second class are 7 cities, Albany, Rochester, Schenectady, Syracuse, Troy, Utica, and Yonkers, all but Syracuse reporting. Albany made so meager a report . . . it cannot be reckoned with, on most questions. Of the other 40 cities having less than 50,000 inhabitants each, comprising cities of the third class, 24 answered the 30 questions sent out by the [American School Hygiene Association]. Of these 17 cities reported 383 schools under supervision. . . . Twelve of these cities have an organized system of medical inspection and in 9 the inspection is made for both contagious diseases and physical and hygienic defects, while in 2 others the vision alone is tested. In 2 others, contagious diseases are the only things for which an inspection is made; 12 cities follow up both cases of contagious diseases and of physical defects . . . and 6 more follow up only . . . contagious disease. In 10 cities it is reported that from 80 to 100 per cent are treated by reputable physicians. The inspection does not average more than one visit per week in most cities. . . .

"In 7 cities the parochial and private schools are also inspected for contagious diseases, and in several places for physical defects. . . .

"In four places the inspector is required to visit the houses to find out the cause of absence. . . .

"In 6 cities the books are fumigated once or twice a year. . . . In 14 of the cities the books and other materials of children ill with contagious diseases or in families where there have been contagious diseases are destroyed and in 14 they are disinfected. . . .

"Eight cities provide one or more nurses. . . . In 5 cities they perform the duties of a medical inspector in a limited way. In three cities the teachers are expected to do this. In seven cities a permanent record of the physical condition of the child is kept; 15 report none.

"The school authorities in 20 of these cities say that medical inspection has improved the hygienic condition of the schools, the efficiency of the children and the attendance. There are none reporting against it."

Summary:

"1. In no sphere has preventive medicine a better field than in correcting the physical and hygienic defects of school children, which are largely undiscovered until school life begins.

"2. The most economical, comprehensive and complete inspection must include examinations by the teachers, by medical inspectors and by nurses in 'follow up' work.

"3. Efficiency and cooperation will be better secured by having physicians employed by the boards of education examine for physical and hygienic defects as well as contagious diseases. As soon as the latter are excluded from school they should fall under the jurisdiction of the board of health.

"4. In New York State medical inspection is rapidly extending and widening its sphere. . . .

"5. As physicians and citizens it is incumbent upon every member to urge the necessity of comprehensive and accurate medical inspection for defects that impede progress as well as diseases which endanger others."

SHAFER, George H. School medical inspection in New York City. Pedagogical seminary, 18: 303-14. September 1911.

Cases of major contagious diseases are at once excluded. The inspector immediately telephones the name and address to the borough office of the division of contagious diseases, and duplicates this by a notice through the mail and again includes the case in his daily report. The division of contagious diseases at once sends a diagnostician, except in case of diphtheria or pulmonary tuberculosis. If the diagnosis is confirmed the case remains under the control of the division of contagious diseases.

Cases of tuberculosis are referred for treatment to the family physician, or to the department of health clinic and a special report is made to the chief of the division of child hygiene.

A few weeks after school opens in the fall, a general routine inspection of all children is made by the medical inspector. This routine is made at the beginning of each term, and is repeated by the nurse at least once a month.

Contagious diseases are designated according to a certain code as follows: (1) Diphtheria, (2) pediculosis, (3) tonsillitis, (4) pediculosis,¹ (5) acute conjunctivitis, (6) pediculosis,¹ (7) trachoma, (8) pediculosis,¹ (9) scarlet fever, (10) measles, (11) varicella, (12) pertussis, (13) mumps, (14) scabies, (15) ringworm, (16) impetigo, (17) favus, (18) molluscum contagiosum, (19) acute coryza.

When the physician diagnoses a case he calls out the code number, and the teacher puts down the name of the child with the code number.

There are three classes of physical examinations. 1. Routine physicals. 2. Work paper physicals. 3. Physicals for athletics.

Each morning as soon as the inspector has made his tour of inspections, he stops at one of his schools to make regular physical examinations. These cover the following points: Defective vision, defective hearing, defective nasal breathing, hypertrophied tonsils, tuberculous lymphnodes, pulmonary disease, cardiac disease, chorea, orthopaedic defects, malnutrition, defective teeth, defective palate. A measurement of height is also made.

The examinations are made in the following order: First the children entering school for the first time. Second, beginning with children of the lower grades and proceeding to the higher grades in regular order.

SMART, Isabelle Thompson. Examination of subnormal children. Women's medical journal, 22: 57-59, March 1912.

"Medical examination of school children should be included in every city, town and district in the State, and the special examination of all children thought to be mentally backward or deficient should be in evidence everywhere."

Gives some statistics gathered in the course of the author's medical work, 1910-11, as special examiner of the mentally unfit in the public schools of Greater New York.

Of one group, numbering 2,500, there were 204 who needed actual hospital care. There were 627 requiring general medical care; and 90 cases in such poor physical condition as to make an outdoor class imperative. There were 145 cases of epilepsy, the major number of them of the more serious form known as grandmal; 947 cases of masturbation; 946 cases of speech defect; cases needing dental care, 1,560. "The eye defects," says the writer, "were appalling, and ranged . . . all the way from a simple, slight strabismus to congenital cataract of both eyes and tuberculosis of the eyeball. . . . I found 1,608 children suffering from aural defects; [and] 1,716 cases who had adenoids, or enlarged tonsils. . . . Eighty-one children had chorea, or St. Vitus Dance, while there were 876 cases showing various other forms of nervous diseases. In addition . . . there were 446 hearts in a pathologic state . . .

"Is it any wonder that such children are seldom promoted; that they are reported as nervous and irritable; that they are with difficulty controlled, and that so many of them become truant?"

SMART, Isabelle Thompson and MACY, Mary S. On the medical examination of children reported as mentally defective in the public schools. Pediatrics, 23: 665-71, November 1911. tables. charts.

Reprinted.

Data collected in the course of routine examination of 6,245 school children in the public elementary schools of New York City. The children were all backward.

Result of examination of 6,245 backward children in New York City.

	Percentage of examined.
Eye defects	88.6
Ear diseases or deaf	67.7
Defective teeth	72.7
Tonsils alone enlarged	32.2
Adenoids alone enlarged	29.6
Tonsils and adenoids	50.1
Speech defects	41.3
Epilepsy	6.4
Chorea	4.4
Other neuroses	32.7
Tubercular suspects	8.2
Cardiac weakness	17.5
Nutritional disorders	68.7

¹ The repetition of Pediculosis "was originally intended to shield the pupil. In the examination the pupils file past the physician who calls out the code number to the teacher or nurse as the diagnosis is made. Any one of the four numbers was recorded as pediculosis." (Letter of author, U. S. Bu. educa., Div. sch. hyg.)

65.6 per cent of all examined were boys and 67.4 per cent of all assigned for treatment were boys.

"The problem is a good one, and fraught with serious consequences if public sentiment is not aroused to the magnitude of the increase in defective mentality, and if some definite legislation is not speedily enacted along the line of eugenics."

NORTH CAROLINA.

FERRELL, John A. Report. Status of hookworm disease in North Carolina. *In* North Carolina. State board of health. Thirteenth biennial report, 1909-1910. Raleigh, N. C., Edwards & Broughton printing co., 1911. p. 53-55.

Of more than 600 North Carolina college students examined for hookworm disease, residents of 50 counties, one-third were found to be infected. Probably one-fourth of the rural population are infected, the highest infection percentage being among school children.

The plan of campaign is as follows: 1. The State will be divided into 16 or 18 sanitary districts. 2. Five practical physicians of experience will be appointed as field agents. They will devote their entire time to the campaign against hookworm disease. 3. Each field agent will be assigned to a sanitary district. He will be expected to cooperate with the doctors, teachers and "all other forces which may lend a helping hand toward making the facts and methods for eradication, common knowledge. Wherever practicable examinations will be made free."

A conservative estimate gives the annual loss occasioned by hookworm disease, in the State appropriation for public schools, as \$187,500.

HAYWOOD, Hubert, jr. Results of the examination and treatment for hookworm disease of the pupils at the State blind school for the white. *In* North Carolina. State board of health. Bulletin, 26: 175-78, August 1911.

Out of 172 pupils examined, 83 were infected with hookworm disease; about 56 per cent of the boys and about 42 per cent of the girls, with one or two exceptions all being from country districts, largely from farms; not a single case from a city or town where there was a sanitary sewerage system.

BANKIN, W. S. What County boards of health are doing. *In* North Carolina. State board of health. Bulletin, 26: 334-43, January 1912.

Board of health rules:

"That all children attending schools shall be vaccinated or be excluded from school after January 1, 1912. (See Exhibit A.)

"That the county superintendent of health shall be provided with a suitable stereopticon lantern and a full collection of lantern slides, and that he shall give illustrated lectures in all of the public schools of the county on important phases of sanitation.

"That the teachers in the public schools shall examine the children for the common physical defects, and report on suitable blank forms furnished them by the county superintendent of health. Probably defective children shall be examined by the county superintendent of health, who shall notify the parent of the condition of the child and of the proper course to pursue to secure the necessary treatment. (See Exhibits B, C, and D.)

"That the public school teacher shall report to the county superintendent of health all absences from school on a post card furnished them by the said superintendent. (See Guilford County Exhibit E.)

"That the county superintendent of health shall notify the teachers of public schools of the presence of infectious diseases in the families that have children attending their school. (See Exhibit F). . . [He] shall visit and make examination of all school buildings and grounds during the school vacation every year; . . . shall keep a record on file in his office showing the physical condition, recommendations, and effects of treatment of defective school children that have been referred to him by the teacher." (See Exhibit G.)

STROSNIDER, C. F. The frequency of hookworm infection among the whites as compared with the negroes. *In* North Carolina. State board of health. Bulletin, 26: 167-69, August 1911. table.

In the examination of 3,429 school children, 2,092 of whom are whites and 1,337 negroes, 34 per cent of the whites are infected against 15 per cent among the negroes. The infection among the rural whites is three times as frequent as among the semi-rural and those whose homes have sewer connection; and the rural negroes were found five times as commonly infected as were those in the large towns. The percentage was always lower, excepting one case, among the negroes.

The infection was found to be higher among mulattoes than among full-blooded Africans.

NORTH DAKOTA.

North Dakota. State board of health. [The medical inspection of school children in North Dakota] *Its Bulletin*, 4: 3-5, September 1911. (Caption: Back to school)

Section 226 of the 1911 session laws reads as follows:

"The board of any school corporation may employ one or more physicians as medical inspector of schools. It shall be the duty of the medical inspector to examine, at least once annually, all children enrolled in the public schools of the district, except those who present a certificate of health from a licensed physician, and to make out suitable records for each child, one copy of which shall be filed with the county or city superintendent of schools. Notice of physical defects of abnormal or diseased children shall be sent to the parents, with recommendations for the parent's guidance in conserving the child's health. The medical inspector shall co-operate with the state, county, and township boards of health in dealing with contagious and infectious diseases and to secure medical treatment for indigent children. It shall be the duty of the county and city superintendents of schools to co-operate with school boards in promoting medical inspection. He may arrange schools by groups, especially in the rural districts, for the purpose of inspection, and shall advise school boards with a view to securing the most efficient and economical administration of this law. The school board or board of education shall furnish all blanks and other needed supplies for this purpose."

The last legislature passed the following law:

"Each local board of health, at least once every thirty days, in such manner as it shall direct, cause to be adequately disinfected each school house, within its jurisdiction; provided this act shall not apply to school houses during vacation; provided, that except in case of emergency, the disinfection of school houses shall be made after school on Friday afternoon or on Saturday."

"Summing matters up we would respectfully recommend for the consideration of school boards all this time the following: 1. Medical inspection of schools. 2. Where this is not practical, engaging teachers who are competent to recognize the ordinary contagious diseases as well as the common physical defects. 3. That the attention of parents be directed to such physical defects as may be detected and suggestions made as to how they may be remedied. 4. Provide adequate sanitary accommodations for all pupils. 5. Abolish the common drinking cup. 6. Prohibit spitting."

See same: p. 6-7, October 1911.

"The last legislature passed a law making monthly disinfection compulsory. . . .

"In the opinion of Attorney General Miller this law is null and void on account of a discrepancy between the title and the body of the bill. He says:

"I have traced the course of this measure through the legislature and find that it was several times amended and that, as finally passed, the title of the bill covered sufficiently the subject matter embraced within the body of the bill. It appears therefore that an error was made in the enrollment of the bill, so that when submitted to the governor for his signature it was a different measure than when passed by the legislature."

"From this you will note that the legislature was right and that the bill falls through a technical clerical error."

OHIO.

AYRES, S. C. Civic medical inspection of school children, with special references to diseases of the eye, ear and throat. *Journal of ophthalmology and otolaryngology*, 6: 1-6, January 1912.

General; and Cincinnati, Ohio, in particular.

"The work done by the school nurses has been of the greatest benefit. Three nurses . . . had supervision of 13 schools. The following figures will give you some idea of what they did in 1910:

"They made 1,426 visits to the schools, and inspected 3,676 cases. They gave 1,191 treatments at the homes of the children, and 7,900 at the schools, and made 11,434 reinspections. They held 1,455 consultations with the parents."

Cincinnati. [Board of education] Medical inspection. *In its Report of the public schools*, school year ending August 31, 1911. p. 84-88. tables.

Under "supervision of the department of health by the district physicians. Primarily, its aim is the . . . detection of infectious and contagious diseases . . . School inspection includes also the detection of those physical defects which interfere with the child's ability to do his school work. . . .

"One hundred and two public and parochial schools were included in school hygiene, and in the congested districts 5 nurses were employed to look after the physical welfare of the children in 21 schools. . . .

"Three additional nurses were appointed for the present year. A daily notice is sent to every school in the city by the board of health, giving information concerning all the children of the city who are excluded for contagious diseases, and also a list of those who are permitted to return."

Total number of medical inspections for 1911, 11,811.

Diphtheria exclusions.....	8
Scarlet fever exclusions.....	67
Measles exclusions.....	11
Mumps exclusions.....	75
Chickenpox exclusions.....	143
Whooping cough exclusions.....	21
Impetigo contagiosa exclusions.....	56
Tinea exclusions.....	28
Scabies exclusions.....	76
Pediculosis exclusions.....	256
Other diseases exclusions.....	298

Total excluded..... 1,039

Examined but not excluded, 1,374.

Recommended for treatment.

Defective eyesight.....	800
Diseases of the eyes.....	303
Defective hearing.....	115
Otitis media.....	84
Hypert. tonsils.....	864
Adenoids.....	318
Eczema.....	266
Other skin diseases.....	314
Tonsillitis.....	510
Other diseases.....	1,577

Total..... 5,151

Examined but not recommended for treatment, 4,854. Total number examined, 24,229.

Defects of the eye, ear, nose, throat, in children of five public schools in congested districts:

Total examined.....	2,437
Defects of vision (33.36 per cent).....	813
Defects of ear, nose, and throat (64.13 per cent).....	1,563

Dental inspections have been held for three years; 14,886 school children have been examined, of whom 12,205, or 90 per cent, required dental attention. Inspections are carried on by volunteers from the Cincinnati Dental Society. A permanent lecture committee addresses mothers' clubs, school children, and other organizations desiring its services.

In September, 1910, a free dental clinic was established in one of the school buildings; expense of operating the clinic about \$2,000 for every 1,000 children.

"The most notable innovation is the so-called 'experimental class,' which is being conducted at the sixth district school—certain psychological, physical, sociological, and dental tests instituted; behavior attendance, scholarship, etc., recorded, and dental treatment given—the object being to demonstrate that through proper hygienic mouth conditions, scholarship, attendance, behavior, manner, etc., will be radically improved, thereby saving the municipality in actual money more than the cost of maintaining proper conditions. At the end of the year these tests will be repeated. . . . This is the first time that this experiment has been attempted with an entire classroom and the results should be of great scientific importance."

Cleveland. Board of education. Second annual report of the Division of medical inspection of schools, Cleveland, 1911-1912. 8 p. tables. 8°.

Number of cases fully corrected during the year 1911-1912 was 3,580, as compared with 1,793 for 1910-11.

"Of the corrected cases, approximately two-thirds of the number were repeaters, presumably by reason of correctable defects."

	1910-11	1911-12
Inspectors.....	15	12
Nurses.....	15	18
Inspectors in special work.....	1	3
Hours.....		14,110½
Inspections.....		10,323
Examined.....	50,864	41,514
Defective.....	31,787	31,177
Not defective.....	19,177	10,337
Per cent defective.....	62.55	75.1
Exclusions.....	891	817
Treatments.....	12,132	12,766
Home visits.....	8,663	9,855
Dispensary visits.....	789	909
Eye clinic visits.....	762	833
Baths.....		4,237
Dressings.....		4,322
Cases corrected.....	1,793	3,580
Home investigations.....	495	1,009

	1910-11		1911-12	
	Found.	Cor- rected.	Found.	Cor- rected.
Number of defects.....	51,186	2,451	63,582	5,396
Teeth.....	16,464	248	21,784	1,813
Tonsils.....	7,776	563	7,212	1,016
Adenoids.....	3,434	494	11,343	825
Glands.....	5,010	17	7,577	111
Nasal obstruction.....	2,051	18	3,060	89
Hearing.....	1,320	33	1,276	92
Vision.....	10,709	1,026	5,913	1,378
Anæmia.....	967	3	1,119	21
Scoliosis.....	91	6	267	4
Nutrition.....	606	2	2,065	8
Mentality.....	334	.....	333	.....
Chorea.....	64	1	52	2
Extremities.....	93	.....	60	2
Chest.....	38	.....	22	.....
Discharging nose.....	451	.....	521	11
Discharging ear.....	176	3	98	12
Heart.....	216	13	173	2
Lungs.....	31	.....	38	1
Others.....	1,335	17	172	4
Goitre (included in others).....	.....	6	479	7

Major communicable diseases.

	Found and ex- cluded by school inspectors.		Reported to central office and report- ed to schools.	
	1910-11	1911-12	1910-11	1911-12
Tuberculosis.....	16	32	.....	.....
Tonsillitis.....	70	85	.....	.....
Trachoma.....	5	1	.....	.....
Diphtheria.....	3	3	650	1,125
Scarlet fever.....	11	24	1,927	1,108
Measles.....	10	7	1,429	1,310
Smallpox.....	.....	.....	1	1
Chicken pox.....	20	14	751	.....
Mumps.....	24	17	.....	.....
Pertussis.....	5	6	206	.....

Report of medical inspection of backward, defective, and mentally defective children of the public schools of Cleveland, Ohio.

Classification.	Chrono- logical age.	Psycho- logical age.	Number exam- ined.	Per cent.
Idiots and low imbeciles.....	7 to 16	2 to 4	40	3.10
Middle and high imbeciles.....	9 to 17	5 to 7	140	10.92
Low and middle grade morons.....	12 to 16	8 to 10	267	20.84
High grade morons.....	16 to 17	11 to 12	22	1.71
Three years retarded.....	6 to 15	3 to 12	281	21.92
Two years retarded.....	6 to 14	4 to 12	275	21.46
One year retarded:				
Chronologically normal.....	6 to 13	5 to 12	213	16.62
Psychologically normal.....	6 to 11	6 to 11	41	3.20
Above normal.....	.....	.....	2	.16
Total number examined.....				1,281
Total number of feeble-minded.....				469
Total number of feeble-minded and border-line cases.....				750
Number now in special classes.....				302
Number now in boys' school.....				131

Cleveland. Superintendent of schools. Medical and dental inspection. In his Annual report, 1909. p. 70-72. table (results in two contrasted schools)

Examination of 30,000 children in grades III to VII, year 1906-7, by the Department of physical training, with respect to condition of eyes, ears, nose, and teeth.

In one school in "congested" district contrasted with results in "East End" school.

	East End.	Congested district.
Number examined.....	668	616
Defective vision..... per cent..	32.4	17.1
Defective hearing..... do.....	5.2	1.8
Diseased ears..... do.....	8.9	12.8
Habitual mouth breathers..... do.....	12.1	14.7
Teeth very defective..... do.....	1.3	15.7
Teeth very dirty..... do.....	27.8	46.4

In March, 1909, of 36,403 children examined, the teeth were found to be defective of 27,913.

"Though the Cleveland schools have never enjoyed a complete system of medical inspection, the department of health, through its ward physicians, protect the schools from infectious diseases. . . . In addition, under the general direction of the school physicians, there have been located in schools in foreign districts, six school dispensaries, five of these being established this year. . . . At each is stationed a school nurse; . . . a new feature of this year."

Cleveland chamber of commerce. Report of the Municipal sanitation committee on medical inspection in the schools. 10 p. 8°.

Approved by the Cleveland chamber of commerce, February 23d, 1909.

Historical sketch, and argument for medical inspection based on Superintendent's report for Cleveland schools, 1907: "That the schools are suffering a great economic and moral waste. . . . 8,595 children, 13.3 per cent of last year's enrollment, were three or more years behind their grade. At the estimated tuition cost of \$26 per enrolled pupil per year, this number represents a dead loss per annum of \$223,470. It is estimated that less than one-tenth of this sum will provide an adequate system of medical supervision. If such a system resulted in the saving of only one grade to not more than one in ten of these backward children each year, it would prevent a greater waste than it would cost."

McHENRY, Junius H. Medical school inspection in Cleveland. Cleveland medical journal, 8: 338-46, June 1909.

Also in Ohio State medical journal, 6: 641-45, December 15, 1910., Title: Medical inspection of schools.

In March 1906, the board of health appointed 26 physicians to attend the indigent sick and to inspect the public and parochial schools. The ward physicians organized themselves into the Cleveland medical school inspectors association; redistributed assignments of schools, effective in 1907.

Each inspector visits each of his schools daily. During school session, monthly meetings are held by the inspectors and representative medical men and specialists, to discuss conditions and present addresses.

"Cleveland has installed a system which, I believe, does not exist in other cities, namely school dispensaries. These are situated in the congested foreign element districts of the city. Two such dispensaries are now used and others are being equipped. It is the intention of the board of education to establish others . . . where they are most needed. A graduate nurse of the visiting nurses association is in charge . . . and is under the instructions of the school inspector. . . . After school hours the nurses are required to visit those children who were absent, on account of exclusion. . . . As a result 90 per cent of the children that otherwise would have been excluded, are enabled to continue in attendance . . . without exposing any of the associated children to the dangers of infection."

Treatment is given at these dispensaries for emergency cases only. A card system is in operation, "intended to follow the child through its school life and the information is confidential for the boards of health and education," regarding the home and health conditions found in investigation.

WALLIN, John Edward Wallace. Medical and dental inspection in the Cleveland schools. Psychological clinic, 4: 93-108, June 15, 1910.

Bibliography: p. 108.

Between the school nurse and the dispensary of one school alone, 1,871 days in school were saved for children who otherwise would have been excluded. "As a result of this hygienic and medical work the attendance records have reached unprecedented heights in these irregular stations."

OKLAHOMA.

CLOUDMAN, H. H. Medical inspection in the public schools. *Oklahoma school herald*, 19: 14-16, May 1911.

The department of medical inspection was organized about October 18, 1910.

About 8,000 pupils were inspected. They were presented with cards which they filled out. They gave their personal history relative to contagious diseases and other ailments; and stated if they had had any trouble with eyes, ears, nose, throat or teeth, and if these had been treated.

The findings were about the same as those of other cities. Fifty per cent or more had defective teeth; 30 per cent had some type of throat trouble, mostly enlarged tonsils; 9 per cent had eye trouble; and 8 per cent had ear troubles.

The board of health reports "all cases quarantined for any contagious disease and this in turn is reported to the principal of the school to which the child belongs and instructions given to exclude all others from this same family unless they have a certificate . . . that there is no danger of further spread through them as disease carriers. The principals in turn report all cases of which they learn and these cases are reported to the board of health."

PENNSYLVANIA.

DIXON, Samuel G. Medical inspection of school children. *Pennsylvania medical journal*, 15: 939-41, September 1912.

Also in Pennsylvania school journal, 61: 216-18, November 1912.

State law for medical inspection of school children in Pennsylvania passed in 1911; responsibility placed "upon the school authorities with the exception of the districts of the fourth class which were allotted to the State department of health providing the school directors see fit not to vote against it each year. . . .

"The result of the influence of the efforts of the National league for medical freedom was as follows:

"The directors decided that 139 districts should not have examinations, which defrauded 214,000 children of help. In the fourth class 1,617 districts, representing 408,000 pupils, were also defrauded by the acts of the school directors. Therefore 622,000 children were left to go without the medical care given in other counties. This, however, left 652,000 who did reap the benefit of medical examination and of these, 207,000 were examined by the State department of health.

"As the result of this inspection, approximately 105,000 children were found to have one or more of the defects enumerated, 265,000 defects having been found by the inspectors. The returns from the teachers at the end of the school year would indicate that thousands of our children have been directly benefited by the inspection made last year."

HAMILTON, S., jr. Medical inspection of schools. *Hahnemannian monthly*, 47:110-17, February 1912.

"Medical inspection in Pittsburgh has in view two objects:

"1. Routine class room inspection, which is solely for the detection of communicable diseases, and which relates, primarily, to the immediate protection of the community.

"2. The physical examination of each child, which aims to discover defects, diseases and physical condition, thus looking to the securing and maintaining of the health and vitality of the individual. Physical examinations, to be effective, must follow the child from grade to grade and from year to year."

Harrisburg. Department of medical inspection. Report. *In Annual report of the public schools, for the year ending June 1910.* p. 51-53.

Total number routine examinations	7,504
Total number showing some defect.....	2,423
Defective vision.....	677
Defective hearing.....	143
Defective teeth.....	187
Hypertrophied tonsils.....	806
Adenoids.....	432

Johnstown. [Board of school directors] Instructions to school physicians relative to medical examination of school children in Johnstown, Pa. *In its Report and manual*, 1912. p. 27-31.

Each inspector must "make frequent examination of the general conditions of the buildings, noting cleanliness, toilets, heating, ventilating, lighting, condition of blackboards, and all things that may affect the general health of the school inmates. . . .

"Each school physician shall also from time to time make such examination of teachers and janitors as the health of the pupils may require."

KEEN, Edwin L. Medical inspection and precaution in the schools. Pennsylvania school journal, 60: 407-408, March 1912.

Reprinted in Pennsylvania educational association. Directors' department. Proceedings, 1912. p. 121-22.

"The Harrisburg school district, on the advice of our superintendent, created a voluntary department of medical inspection, with one physician and one nurse, without cost to the district, in the year 1907-8. After one year's work the results were so gratifying that the district decided to continue the department the next year by the employment, on a fixed salary, of one physician and one nurse. The following year, an additional nurse was employed. . . . A complete card system was instituted . . . and a full set of blanks was provided. . . . The following will show some of the most important defects: . . . Malnutrition, 2.83 per cent; chorea, 0.162; heart disease, 0.473; pulmonary disease, 0.266; skin disease, 5.06; defective spine, 0.261; defective vision, 14.83; defective nasal breathing, 5.27; defective hearing, 1.38; defective teeth, 2.18; hypertrophied tonsils, 12.80; adenoids, 3.11. . . .

"Out of 1,416 pupils reexamined at the end of the first year, 448, or 31 per cent, had consulted the family physician."

LAFFER, Cornelius C. The results of the examination of the school children of Meadville and its importance. Pennsylvania medical journal, 15:941-44, September 1912.

Some 75 per cent of the children have bad teeth; from 15 to 20 per cent, enlarged tonsils or adenoids; about 10 per cent have defective vision.

Philadelphia. Board of public education. [Health rules for infectious and contagious diseases in the public schools] *In its Annual report*, year ending December 31, 1910. p. 313.

"SEC. 2. It shall be the duty of the principals to report quarterly, to the superintendent of schools, the number of nonvaccinated children applying for admittance to their respective schools.

"SEC. 3. When smallpox, scarlet fever, diphtheria, diphtheritic croup, membranous croup, cerebrospinal meningitis, cholera, yellow fever, bubonic plague, glanders or anthrax shall exist in the family of any pupil or teacher, or any person connected with, any of the public schools of this district, or in the house in which any of said pupils, teachers or other persons reside, all such pupils, teachers or other persons shall be excluded from school and the school building, and shall not be permitted to return until he, she, or they shall present the written approval of the bureau of health.

"SEC. 4. When measles, german measles, chickenpox, mumps, or whooping cough shall exist in the family of any pupil or teacher, or of any person connected with, any of the public schools of this district, or in the house in which any of said pupils, teachers, or other persons reside, no such pupil, teacher or other person shall be permitted to attend school or enter the school building, without the written approval of the bureau of health; such approval to be based upon careful examination of all the circumstances surrounding the case.

"SEC. 5. Any pupil suffering from tonsillitis, contagious eye diseases, or parasitic diseases of the head or body, must be excluded from school until the bureau of health shall have certified that all liability to communicate the disease to others has passed."

Reading. Board of education. Medical inspection. *In its Annual report*, 1910-1911. p. 10-12.

"The sanitation committee of the school board has conducted experimental medical inspection for several years. . . . Of 8,331 pupils examined, up to June, 1910, 4,372 suffered with defects."

Defective vision.....	1,526
Defective hearing.....	733
Enlarged tonsils.....	1,964
Adenoids.....	351

About 6,108 separate defects were found.

The school nurse assists in the medical inspection. In addition to medical inspection by a physician, pupils suffering from stuttering are treated.

In 1910 the Reading dental society detailed 25 of its members to inspect the teeth of the public school pupils. Of 8,925 examined, less than 3 per cent had perfect teeth. Of nearly 9,000 examined in the winter of 1909-10, only 4,949 had ever used a tooth brush, 1,369 had ever been to a dentist, and 1,094 had had permanent teeth extracted.

Permanent teeth cavities.....	28,548
Temporary teeth cavities.....	14,707
Green stain.....	5,910
Abnormal gums.....	925
Tartar.....	1,896
Abnormal occlusion.....	1,654
Atrophy of teeth.....	308
Mouth breathing.....	236
Putrescent pulps.....	1,894
Exposed pulps.....	1,717

A free dental clinic was organized and in eighteen months treated the teeth of 275 pupils.

RHODE ISLAND.

CHAPIN, Charles V. Medical inspection of schools in Providence. [Ansonia, Conn., The Emerson publishing co., 1909] 15 p. 8°.

Begun, in Providence, R. I., 1894, following Dr. Durgin's work in Boston; teachers and parents of pupils in large grammar school subscribed a sum of money and hired a physician as school physician for one month. Appropriation of \$1,000 for school inspection followed the results obtained—two inspectors, a man and a woman were appointed.

In Providence, the children come to the inspector. On every school day in the year an inspector is on duty at the city hall, between 12 and 1 o'clock; he examines the children sent by the teachers; to them he gives a note stating his findings, which the children take to their teachers. Teachers are "expected to see that the child's parents are notified, and if any treatment is necessary to see that it is carried out."

Providence. School committee. [Medical inspection] *In its Report*, 1909-1910. p. 126-28.

Signed: Ellen Le Garde.

"In the spring of 1904, medical inspection was inaugurated in the Providence schools. Since March 1, 1909, three inspectors have been employed, and on April 1, of the same year, this inspection was extended to the parochial schools. . . . In 1906 a school oculist was employed. . . . The great part of the work of the school inspectors is with contagious skin diseases and pediculosis. These cases are treated at the city hall and the material needed furnished by the board of health.

"In February, of 1909, a school nurse was introduced. She follows up the cases from the school to the home; . . . also sees that children sent to the oculist and to the hospital get there. School baths have been in existence since 1906. . . . Four school matrons attend to the daily baths in the different buildings."

SOUTH CAROLINA.

GANTT, L. Rosa H. Medical inspection of schools in Spartanburg, S. C. South Carolina medical association. *Journal*, 7: 329-34, September 1911. tables.

Reprinted in Pediatrics, 23: 337-42, June 1911.

Following the work of Dr. Himes in Seneca, S. C., the Spartanburg County, S. C., Medical society undertook the examination of Spartanburg city school children, 1910-11, without charge.

Scope of work: (1) The detection of parasitic, infectious and contagious diseases; (2) exclusion from school of all children affected with acute contagious diseases; (3) inspection of each school child for physical defects and noncontagious infection; (4) inspection of the hygienic and sanitary condition of the school buildings and premises.

In each case, the inspectors made complete record on three blanks: (1) A history card kept by the examiners; (2) a record card kept by the school authorities; (3) a notification card sent to the parent.

	Children examined.	Defective.	Per cent.	Teeth de- fective.	Hypertro- phied ton- sils.
				<i>Per cent.</i>	<i>Per cent.</i>
Whites.....	1,891	822	42.5	19	21
Colored.....	676	355	56.0	30	41

Colored.

	First grade.	Second grade.	Third grade.	Fourth grade.	Fifth grade.	Sixth grade.	Seventh grade.	Eighth grade.	Total.	Percentage.
Number examined.....	243	89	109	94	34	28	28	9	678	.....
Total defects.....	167	114	84	69	41	25	27	17	544	56
Total defectives.....	116	70	60	43	25	18	14	9	355	56
With 1 defect.....	74	38	42	27	12	11	5	6	215	.....
With 2 defects.....	36	22	11	11	11	7	5	4	106	.....
With 3 defects.....	4	8	6	4	1	0	4	1	28	.....
With 4 defects.....	1	2	1	2	1	0	0	0	7	.....
With 5 defects.....	1	0	0	0	0	0	0	0	1	.....
Adenoids.....	4	1	1	1	0	0	0	0	7	.....
Tonsils.....	58	31	22	18	10	5	2	2	147	41
Vision.....	21	24	6	11	7	1	9	7	86	24
Hearing.....	17	15	12	8	6	6	2	0	67	19
Eyelids.....	2	3	4	4	2	1	1	0	16	4
Teeth.....	26	17	23	13	7	7	9	6	107	30
Skin.....	20	9	9	5	5	3	0	0	51	14
Anemia.....	10	6	3	4	3	1	2	1	29	8
Pediculosis.....	0	7	4	0	0	0	0	0	11	11
Enlarged glands.....	6	1	0	3	2	0	1	1	13	.....
Other defects.....	4	0	3	2	9	1	1	0	11	.....
Per cent defectives.....	47.7	78	55	45	73	64	50	100	.....	56

HINES, E. A. A plea for medical inspection of school children in South Carolina—Report of the work at Seneca. South Carolina medical association. Journal, 6: 454-57, September 1910.

"The Seneca schools are the first in South Carolina to put in operation the modern idea of medical inspection," beginning September 23, 1909. Staff of examiners: Two competent dentists, an eye and ear, nose and throat specialist, two general practitioners, and a secretary; 200 children, ages 6 to 18, pupils first to tenth grades, examined.

Children having—	Number.
Defective teeth.....	153
(Number of teeth, 600.)	
Defective tonsils.....	32
Enlarged glands.....	24
Adenoids.....	3
(Number of suspects.)	
Eye defects.....	19
Nasal defects.....	3
Skin lesions.....	2
Orthopedic defects.....	4
Teeth brushed daily.....	170

"I can not find any report on the negro school child in the South. I examined a representative number and found in general faulty nutrition, practically all with teeth defects—contrary to the idea that prevails. Fewer serious tonsil defects compared to the whites, more skin lesions. I did not examine for adenoids. A fair proportion had used the tooth brush.

"I also examined a representative number of cotton-mill children among the whites. Ninety per cent had bad teeth—not one used a toothbrush."

South Carolina. State board of health. Hookworm disease. *In its* Thirty-first annual report, 1910. p. 15-18. table.

From October 1 to December 10, 1910, in five counties, 4,685 children were examined clinically; 80, microscopically; 165 cases treated; 47 per cent gave clinical evidence of being infected with the hookworm.

South Carolina. State board of health. Medical inspection of schools. *Its* Monthly bulletin, 1: 3-29, October 1910. tables.

"The Southern States have been behind almost all the rest of the countries of the civilized world in introducing medical inspection of schools. . . .

"New Orleans was the first Southern city to take active steps in this direction in 1908, and Atlanta, in 1908 and 1909. In South Carolina the complete modern idea of medical inspection of schools was inaugurated in the Seneca graded and high schools, September 23, 1909. . . . The examination [was] conducted by two general practitioners of medicine and surgery, two dental surgeons and one eye and ear, nose and throat specialist, a secretary and the teacher of each grade."

Of the defects discovered among 200 pupils, "children of the very best and most prosperous citizens of the Piedmont section," were:

Glands enlarged.....	24
Eye defects.....	19
Teeth defects.....	153
Tonsil defects.....	32
Not vaccinated.....	168

"A representative number of children of the cotton mill and negro schools disclosed a much greater number of defects."

[South Carolina] The veto of the Medical inspection bill. South Carolina medical association. Journal, 8: 62-63, March 1912.

Passed, with some amendments by the General assembly, and vetoed by the governor.

WARD, J. La Bruce. Hookworm disease; its eradication in South Carolina. South Carolina medical association. Journal, 7: 341-43, September 1911.

Work in the schools of 11 counties in South Carolina, chiefly the southern and southeastern parts; of the 1,100 children examined, 37½ per cent were infected.

"That is, they gave clinical evidence of the disease. A microscopical examination would show a much heavier infection. Following that we examined about 4,500 children in Kershaw, York, and Abbeville. The lightest infection was in Abbeville County. We believe the adjoining counties will have as light an infection. Dr. Weinbery examined 1,180 children, and found only 7 suspects; whereas in some other parts of the State we found at least 75 per cent of the children showing clinical evidence; . . . and I am satisfied, from the microscopical findings so far . . . would have shown an infection of 100 per cent. . . . At Furman university, where 100 specimens were examined, without examining the men at all until after . . . 38 per cent were found infected; . . . and I should not have made a single diagnosis on clinical findings.

"At Clemson College we found 33 per cent of 65 men examined infected, and I would not have made a clinical diagnosis of any of those cases.

"Taking the 9,000 children examined in the State, we find an infection of over 25 per cent, clinically; . . . microscopical findings would have run much higher."

TENNESSEE.

HILL, David Spence. The status of school hygiene in Tennessee. In American school hygiene association. Proceedings, 1911. Springfield [Mass.] 1911. p. 155-63.

There is little teaching of school hygiene in its technical aspects in Tennessee. The State has no general law requiring medical inspection of school children. In Knoxville, Memphis, Chattanooga, and Nashville encouraging beginnings have been made, but "no full-fledged system with sufficient nurses, trained physicians and thorough organization supported by the city or State exists in Tennessee." During 1909-10 examination of throat and teeth was undertaken in Nashville. The following summary was presented by the inspector, Dr. E. L. Roberts, on December 26, 1910:

Pupils examined.....	2,455
Defective vision.....	148
Crossed eyes.....	36
Trachoma.....	117
Other eye inflammations.....	68
Discharge from ear.....	24
Frequent earache.....	123
Enlarged tonsils.....	199
Defective teeth.....	698

TEXAS.

Fort Worth. [Superintendent of schools] Report of the medical supervisor. In his Annual report, September 1910. p. 35-47.

"Physical examination of school children was begun April 1. . . . In all, over 1,000 children were examined, of these 710 were referred for treatment—medical, surgical, or dental. (It was not possible to examine systematically each child so near end of school year.)"

The first to fourth grades inclusive in all schools were inspected, and in most of the districts all grades. The 710 cases referred may be summarized as follows:

Eyes.....	209
Tonsils.....	300
Adenoids.....	132
Ears.....	77
Enlarged glands of the neck.....	123
Anemia.....	72
Tuberculosis.....	12

Teeth.....	203
Speech.....	15
Nervous disorders.....	33
Acute throat trouble.....	31
Mentality.....	8
Kidney and urinary.....	10
Miscellaneous (about).....	25

"The water tanks now in use are never sterilised, or even cleaned with brush and water. The drinking cup problem is unsolved."

Houston. [School board] Report of medical inspector, June 15, 1911. *In its Annual report, 1910-1911.* p. 59-60.

Signed: W. Wallace Ralston, M. D.

Thirty-eight children, with trachoma, excluded; 74 with symptoms of trachoma.

Houston dental society gave lectures to the children on "The care of the mouth and teeth."

Free eye, ear, nose, and throat clinic established in connection with the city health office, and free dental service offered by the Texas dental college for poor children.

STILES, Charles W. Special report on a preliminary survey of Texas to determine the distribution of hookworm disease. 13 p. table. mimeographed.

Institution.	Number examined.	Positive.
		<i>Per cent.</i>
State university.....	28	25.0
Agricultural college.....	30	10.0
Sam Houston college.....	94	27.5
State medical.....	86	9.3
State blind.....	16	43.7
State deaf and dumb.....	10	20.0

Geographical distribution by counties, p. 5-9 (found in at least 45 counties. Most of the infection thus far known was in the eastern part of the State).

School children: p. 9-13. table.

"Of a total of 1,776 school children seen in 11 different schools and orphanages, 21.5 per cent showed symptoms upon a quick inspection which justified the suspicion that they had hookworm disease. Of 876 boys, 30.7 per cent, and of 900 girls, 12.8, came into the suspect category.

"Of these 1,776 children . . . about 46 per cent . . . were clearly below par, physically. . . . This does not mean that 46 per cent were classified as hookworm suspects. . . . These figures show that nearly half were below normal and that in that condition they can not possibly digest all of the education offered them. . . .

"In some regions about 30 per cent of the school children harbor the disease. . . .

"A campaign against the disease ought to be undertaken without unnecessary delay.

"The public schools of Texas are badly in need of a medical inspection system. . . .

"The sanitation of the school yards is in sad need of attention; . . . their present condition makes them centers from which the various soil-pollution diseases may be spread. . . . In several school yards examined as to sanitation the grading was only 10 on a scale of 100. According to information obtained from one county superintendent of education the index [healthful condition] of 90 per cent of the rural schools in his county is zero (0) on a scale of 100."

VIRGINIA.

PLECKER, W. A. The economic phase of hookworm disease. Virginia medical semi-monthly, 16: 213-15, August 11, 1911.

"In the four counties of Southside Virginia . . . I find an extremely serious phase of the subject. . . . The rural schools in which these examinations have been made show about 50 per cent of infections. . . . In one badly infected portion of my territory there live 20 families with 35 or 40 children of school age. This whole community supplies just two pupils, little girls, to the nearby school. In not one of these families is there the slightest semblance of toilet arrangements. . . . Not one-fourth of these adults possess even the rudiments of an education."

"FOOTNOTE.—In reports from seven teachers of Richmond County, statement is made that from 20 to 60 per cent of their labor is lost on account of the presence of hookworm disease, the average of all being 40 per cent."

Richmond. Superintendent of public schools. Medical and dental inspection. *In his Annual report, year ending June 30, 1911.*

South Richmond physicians, session 1910-11, conducted examination of 1,390 pupils. Results: Defective eyes, 380 cases; enlarged tonsils, 237; adenoids, 111; defective hearing, 13.

Examination of mouth conditions made by the Dental association of Richmond, elementary school pupils. Total examined, 10,919. Pupils having perfect teeth, 1,125; total number of cavities, 20,684.

The city council, by appropriation in March 1911, provided for two physicians and five nurses, including the nurse already at the John Marshall high school; appropriation available, September 15, 1911.

Virginia. [State] Commissioner of health. Hookworm disease. *In his Annual report, year ending September 30, 1911.* p. 19-31. tables.

In Mecklenburg County, of 279 rural school children "taken at random, 133, or 47.7 per cent had hookworm."

WASHINGTON.

Spokane. [Board of education] Medical inspection. *In its Biennial report; for the two years ending June 30, 1910.* p. 37-39.

Department of medical inspection organized at opening of school year 1909-10; chief inspector and four assistants. Regular inspection began September 1909. All schools shall be inspected at least once a week (conditioned). Monthly report to be made by the chief medical inspector, of all work done, copy given board of health, and board of education. Each school principal to make weekly report to superintendent of schools.

Summary of chief medical inspector's monthly reports.

Total individual inspections of pupils, 84,232.

"In addition to the work . . . designed for protection of the schools and communities against contagion and infection, there was a thorough inspection of all the school children for defective vision and other eye troubles, for enlarged tonsils, adenoid growths, defective teeth, and other forms of physical infirmity."

THOMPSON, N. L. Medical inspection of schools. *Northwest medicine, n. s.* 3: 134-37, May 1911.

Bibliography: p. 137.

"Replies received from nine cities showing that medical inspection to a greater or less extent was utilized in Seattle, Spokane, Tacoma, Everett, North Yakima, Olympia, and Aberdeen; negative replies were received from Walla Walla and Wenatchee, and no reply from Vancouver and Bellingham. . . .

"Educational agencies must employ expert medical inspectors who shall see that the health of the school child is conserved.

"It ought not to be an incidental activity of some department but must eventually outrank all others in power as it does in importance. It should aim to accomplish the following: (1) Prevention of infectious and contagious diseases. (2) Scientific supervision of sanitary condition of premises, school buildings, furniture, etc. (3) Teaching of hygiene to teachers and children and through them to the community. (4) Physical education, including supervision of manual training, gymnastic exercises, organized games, etc. (5) Physiology and psychology of ordinary educational methods, including fatigue, neurasthenia, hysteria, questions of sex, etc. (6) Special educational methods for abnormal children—the mentally and physically defective, the dull and backward, the blind, the deaf, etc. . . .

"The medical inspector must, therefore, be broad minded, with sound and extensive medical knowledge, interested in child life, sympathetic, tactful, an investigator; in short, a medical man, a psychologist and a pedagogue."

WISCONSIN.

BARTH, G. P. Medical inspection of schools in Milwaukee. *Wisconsin medical journal, 9:151-62, August 1910.*

Began Fall of 1907.

The city is divided into nine geographical districts; eight, approximately equal in size and contain about the same number of schools; the ninth in the central, or alum district, covers less area because conditions are worse. Each district is under the care of one Assistant medical inspector. For the work of the nurses, the city is divided into four districts, the three outlying territories about equal in size, the central one, smaller.

"Backward" cases are reported by teacher to the chief medical inspector, on the psychological examination blank, on which she records all the family and school history of the child she can collect. When found below par, mentally, by the chief medical inspector, the child is transferred to the "exceptional" school. Classes for the stammerers have been opened; three classes for the blind, in the public schools; the deaf and dumb segregated into a school. No provision has been made for the weak, the anemic, or the crippled.

JONES, Richard W. Medical inspection of schools. *Wisconsin medical journal*, 10:319-27, October 1911.

Inaugurated in Wausau, Wis., following scarletina epidemic 1909-10. First intention simply to examine for contagious diseases, but work was extended to cover physical examinations.

During the year, up to May 1, 6,677 children were examined for contagious diseases, and about 1,000 given physical examinations. Among defects found were: Scabies, 33; impetigo contagiosa, 35; enlarged tonsils, 744; adenoids, 170; defective vision, 42.

"The effect of medical inspection has been to increase the average daily attendance in the schools. With practically the same total enrollment this year [to date April 1, 1911] that there was last year, there have been 8,277½ days more attendance than for the corresponding months of last year . . . at no additional expense for instruction. . . .

"The fallacy of our system has been that we have not had enough authority to enforce our rulings. Many parents refuse to have their children examined or to follow the instructions of the examiners. . . . We should have legislation to cover this point. . . . We should have compulsory examinations of the school children, at least for contagious diseases and eye and ear diseases with possibly diseases of the nervous system. . . . This law should provide for the control locally of the examining bodies, and . . . examining physicians should be trained along these special lines."

Discussion: p. 327-35. In Milwaukee: p. 327-29 (Barth, George P.). In Madison: p. 329-31 (Bardeen, C. E.).

MADISON.

Madison. Superintendent of public schools. Medical inspection in Madison. *In his Annual report, 1910-1911.* p. 44-51. chart. p. 47.

Made under direction of the Madison antituberculosis association, W. D. Frost, president; assistant nurse, Miss L. Dietrichson; 6 of the 11 city schools, pupils examined and eyes tested. There were examined 1,152 children; but 422 had been vaccinated.

Cases.		Cases.	
Defective vision	340	Defective teeth	604
Disease of the eye	41	Skin disease	17
Defective hearing	99	Cough	118
Ear disease	96	Throat trouble	281
Defective breathing	246	Lung trouble	56
Adenoids, known cases	20	Anemic	108

Milwaukee. Board of school directors. The dental clinic [and medical inspection] *In its Annual report, year ending June 30, 1911.* p. 82-94. tables. diagrs.

The Free dental clinic established in the quarters of the department of medical inspection, under charge of the Milwaukee public school free dental clinic association; members of the clinic pledged to serve one-half day each month; all the expenses except the rent of room, borne by the association. Work began February 20, 1911: Number of treatments given, 349; number of permanent teeth filled, 584; number of permanent teeth extracted, 41.

"It is sometimes desirable that a medical examination be had in certain cases in order to determine (a) the advisability of school attendance, (b) the necessity for temporary absence from school, (c) the limitation of the amount of school work to be done, (d) attendance at special schools or classes, (e) medical or surgical procedures necessary or advisable to promote good health or to promote school progress by the removal of physical disabilities, and the department of medical inspection has been freely consulted by other departments in these matters. The following cases were submitted: (1) the truancy department referred 51 cases for nonattendance. (2) By the superintendent's department, 5. (3) by teachers and principals, 42. (4) By the State factory inspector for advice as to the kind of employment permissible to the child, 2. (5) By parents, 19. (6) By doctors and nurses, 129.

On October 24, 1910, The common council passed the ordinance, the text of which is as follows:

"An Ordinance to protect the health of school children. . . .

"Sec. 1. No parent or other person having charge or control of any child between the ages of seven (7) and sixteen (16) years shall permit or allow such child to attend school in a filthy or neglected state, or affected with pediculosis, ringworm of the body or scalp, scabies, impetigo contagiosa, molluscum contagiosum, or infectious dermatitis, or any other contagious or infectious diseases; and any parent or other person having charge or control of any such child so affected shall, after receiving notice given under authority of the board of school directors that such child is so affected, remedy such condition within the following time:

Ringworm of the body (<i>Tinea circinata</i>)	days..	30
Impetigo contagiosa	do	30
Molluscum contagiosum	do	30
Infectious dermatitis	do	21
Pediculosis of any part of the body	do	30
Ringworm of the scalp (<i>Tinea tonsureus</i>)	do	14
Favus	months..	3
Scabies of any part of the body	year..	1
	days..	14

And any other contagious or infectious diseases within a reasonable time.

"Sec. 2. Any person violating any of the provisions of this ordinance shall be punished by a fine of not less than \$1, nor more than \$50 for each and every offense, and in default of payment thereof shall be confined in the house of correction of Milwaukee County for not less than ten days or more than sixty days.

"Sec. 3. This ordinance shall take effect and be in force from and after its passage and publication."
See also p. 23-36 (Elementary grades).

Number withdrawn from school on account of personal illness, 56; mental inability, 13. Failure of promotion because of personal illness, 335; physical defects, 169; inability, 1,900.

TOBEY, Silas B. A successful plan for medical inspection. American school board journal, 42: 9, May 1911.

Established, September 1910. Seven physicians are employed, one for each school center—eight schools, two of which are within half a block of each other. Each physician visits his school at 9 a. m. on each of the five school days of the week, receiving \$1 for each visit. The parochial school children are also sent to the examining physicians.

Every child who has been absent one-half day without prior knowledge and consent of teacher must obtain from physician of his school, a clean bill of health before he may resume school work. A free infirmary and two visiting nurses are supported by private subscription. Poor children are treated free and the nurses visit the homes.

"The effect of medical inspection has been to increase the average daily attendance in the schools. With practically the same total enrollment this year that there was last year, there have been 8,277½ days more attendance than for the corresponding months of the year. The same number of teachers . . . able to care for an average of 83 more pupils in daily attendance this year than we had last year at no additional expense for instruction. . . . We have found the medical inspection one of the most valuable adjuncts to our schools."

MEDICAL INSPECTION RECORDS.

GENERAL REFERENCES.

AYRES, Leonard P. Forms for record-keeping. *In his* Open-air schools. p. 139-48.

Open-air school records of the medical inspection and condition of the pupils: Chicago, Boston, Hartford, Providence.

Cleveland. [Board of education] Card and record system. *In its* The work of medical inspection with statistical report, Cleveland public schools 1910-1911. p. 21(20)-32.

Cleveland's use of system: p. 37-46.

CORNELL, Walter Stewart. Good and bad forms of record keeping. *In* American school hygiene association. Proceedings, 1911. Springfield, Mass., American physical education review, 1911. p. 65-73.

"Every record card should provide accommodation for a number of examinations, at least four. . . . It should provide for a record of the notification to parents . . . together with the date of such notification and official information as to whether or not the defect has been corrected. The age, grade and social condition of the child should be noted and briefly commented upon . . . in connection with the record of his physical defects. . . . The principal defects . . . are only ten in number and . . . may well be given a definite mention upon the record card, since an inspector is less likely to overlook a defect in a child when he is compelled to make a definite record whether or not it exists. For this reason the eye, nose and throat, the ear, teeth and nutrition should be given permanent space on the card; and the skin, the skeleton, the glandular and nervous systems and the mentality should have a definite mention."

CORNELL, Walter Stewart. Keeping of records. *In his* Health and medical inspection of school children . . . 1912. p. 45-57.

University of Pennsylvania, physical record card, p. 49; Dr. Newmayer's card, p. 57.

See also p. 568-77. tables.

MacMURCHY, Helen. [Facts to be noted in examination of feeble-minded children] *In* American school hygiene association. Proceedings, 1911. Springfield, Physical education review, 1911. p. 80.

1. Date and age. 2. Name, address, school, class, etc. 3. Condition of teeth. 4. Condition of nose. 5. Condition of throat. 6. Condition of vision. 7. Condition of hearing. 8. Speech. 9. Reading. 10. Writing. 11. Number work. 12. Hand work. 13. Attention. 14. Memory. 15. Intelligence. 16. Aptitudes. 17. Moral sense. 18. Physical condition. 19. Gout. 20. Coordination. 21. Cause of backwardness, if known.

Rochester [N. Y.] record cards. American school board journal, 45: 44-45, August 1912. figs.

"The health card is made out by the teacher and sufficient for the entire life of a pupil. Entries are made by the school nurse or the teacher from the examination of the medical inspector. On the reverse side space is provided for diagnoses of defective conditions and statements of treatments recommended."

VACCINATION.

KERR, John W. Vaccination. An analysis of the laws and regulations relating thereto in force in the United States. . . Prepared by direction of the Surgeon-General. Washington, Government printing office, 1912. 82 p. 4°. ([U. S.] Public health and marine-hospital service. Public health bulletin no. 52)

St. Louis. Board of education. Report on vaccine virus and on the results of vaccination in the public schools of St. Louis, 1912. *In its* Official report, 18: 564-68, February 13, 1912.

Regarding the vaccination of 577 children vaccinated by the vaccine physicians of the health department, and 218 vaccinated by physicians in private practice, in contrast to the excellent public vaccinations, it was found in several schools that the private operations by certain physicians were uniformly negative.

In the cases in private practice it was discovered that the proportion of takes for the year was "still dangerously low, leaving 63 unprotected persons per 100, instead of 22 per 100 among those vaccinated by the health department."

The inspections for the last two years exhibit the great advantage of public vaccination. The regular vaccination of public school children is the most important prophylactic work done in the city.

See also p. 417 (December 12, 1911). List of cities requiring evidence of successful vaccination as a condition of admission to the public schools: Baltimore, Boston, Buffalo, Chicago, Cincinnati, Cleveland, Detroit, Los Angeles, Newark, New Orleans, New York City, Philadelphia, Pittsburgh, San Francisco, and Washington.

APPENDIX A.

BLANKS AND RECORDS.

CHICAGO, ILL.

DEPARTMENT OF HEALTH, CITY OF CHICAGO.

....., School—Building ^{Old.} _{New.}	
Health officer,	M. D. Nurse
1. School phone	21. Regularity of health officer: Good
2. Enrollment	fair.....; poor.....
3. Number of rooms	22. Is first school visited 9.15? Yes.....; no.....
4. Ventilation: Good.....; fair.....; poor.....	23. Punctuality of health officer: Good.....
5. Light: Good.....; fair.....; poor.....	fair.....; poor.....
6. Average temperature	24. Regularity of nurse: Good...; fair...; poor.....
7. Moisture.....	25. Quality of health officer's work: Good.....
8. Sweeping: Moist.....; dry.....; vacuum.....	fair.....; poor.....
9. Air intake: Ample.....; inadequate.....	26. Quantity of health officer's work: Good.....
10. Height of intake	fair.....; poor.....
11. Are seats adjustable to size of pupils?.....	27. Does principal, nurse, and health officer know
12. Urinals, odor: Bad.....; absent.....	where register is?.....
13. Toilet facilities: Ample.....; inadequate.....	28. Does health officer visit each school daily?.....
14. Toilet paper provided: Yes.....; no.....	29. Interest in work of health officer: Good.....
15. Water supply: Lake.....; well.....; spring.....	fair.....; poor.....
16. Drinking utensils: Cup.....; fountain.....	30. Interest of nurse in work: Good.....
17. Pencils: Individuals..... Pens: Common.....	fair.....; poor.....
18. Is register signed and kept as required? Yes...;	31. Does principal get prompt notice of new cases
no.....	and terminations? Yes.....; no.....
19. Where is register kept?.....	32. Is health officer inspecting parochial schools in
20. Vaccination records complete; where kept:	his territory?.....
Yes.....; no.....	33. Is health officer doing good work?.....
	..... M. D.,
	Supervising Health Officer.
Date....., 19.....	

DEPARTMENT OF HEALTH, CITY OF CHICAGO.

Name..... Address.....

PHYSICAL RECORD.

Sex.....; age.....; birthplace.....
 Nationality of father.....; mother.....; history of measles.....
 Number of children in family.....
 Diphtheria.....; pertussis.....; pneumonia.....; scarlet fever.....
 School..... Vaccinated?.....
 Date first examination....., 19.....

[O placed in square means absence of defects. X denotes defects.]

1. Grade.....	1	2	3	4	5	6	7	8
2. Years in school.....								
3. Revaccination.....								
4. Diseases during year.....								
5. Date of physical examination.....								
6. Height.....								
7. Weight.....								
8. Nutrition.....								
9. Anemia.....								
10. Enlarged glands.....								
11. Goitre.....								
12. Nervous diseases.....								
13. Cardiac disease.....								
14. Pulmonary disease.....								
15. Skin disease.....								
16. Defect orthopedic.....								
17. Rickettic type.....								
18. Defect of vision.....								
19. Other diseases of eye.....								
20. Defect of hearing.....								
21. Discharging ear.....								
22. Defect of nasal breathing.....								
23. Defect of palate.....								
24. Defect of teeth.....								
25. Hypertrophied tonsils.....								
26. Adenoids.....								
27. Mentality.....								
28. Conduct.....								
29. Effort.....								
30. Proficiency.....								
31. Was treatment advised?.....								

(Reverse side for diagnosis and treatment received.)

HEALTH OFFICER'S DAILY REPORT.

School,..... CHICAGO,....., 191.....

Time of {Arrival,.....
 {Departure,..... Total number examinations,.....

Disease.	Diphtheria.	Diphtheria contact.	Diphtheria carrier.	Scarlet fever.	Scarlet fever contact.	Measles.	Measles contact.	Pertussis.	Pertussis contact.	Chickenpox.	Chickenpox contact.	Smallpox.	Smallpox contact.	Mumps.	Mumps contact.	Tuberculosis.	Tonsillitis.	Acute coryza.	Trachoma.	Conjunctivitis.	Ring worm.	Impetigo.	Scabies.	Favus.	Pediculosis.	Miscellaneous.	Total.
Cases:																											
Found.....																											
Excluded.....																											

Number of vaccinations performed: Previous vaccination,.....; revaccination,.....; total,.....

Number physicals made,..... Number children found defective,.....

Number advised to seek treatment,..... Number of cultures made,.....

....., Health Officer.

(Reverse side for exclusions.)

DIVISION OF CHILD HYGIENE—EXAMINER'S DAILY SCHOOL REPORT AND SUMMARY.

CHICAGO,, 191....

School, Time of { Arrival,
 { Departure,

Grade.	Number in grade.	Number examinations to date.	Number defective.	Recommended treatment.
1.....				
2.....				
3.....				
4.....				
5.....				
6.....				
7.....				
8.....				
Special.....				
Total.....				

....., *Health Officer.*

DEPARTMENT OF HEALTH, CITY OF CHICAGO.

HEALTH OFFICER'S WEEKLY REPORT.

School, Week ended, 191....

Number of physical examinations,

Number requiring treatment,

Nationality of those requiring treatment.

Native born, Foreign born,

One or both parents foreign born,

Defects found.

Nutrition.....	Vision.....
Anamia.....	Other diseases of eye.....
Enlarged glands.....	Hearing.....
Goitre.....	Discharging ear.....
Nervous diseases.....	Nasal breathing.....
Cardiac diseases.....	Palate.....
Pulmonary diseases.....	Teeth.....
Skin diseases.....	Hypertrophied tonsils.....
Orthopedic.....	Adenoids.....
Rachitic type.....	Mentality.....

....., *Health Officer.*

DEPARTMENT OF HEALTH, CITY OF CHICAGO.

DENTAL INSPECTOR'S DAILY REPORT.

School..... CHICAGO....., 191..
 Total number examined.....
 Number found to have defective teeth.....
 Number needing immediate attention.....
 General condition of teeth found: Good.....; fair.....; bad.....
 Number of pupils applying for dispensary work.....
 Remarks.....
 D. D. S.

DEPARTMENT OF HEALTH, CITY OF CHICAGO.

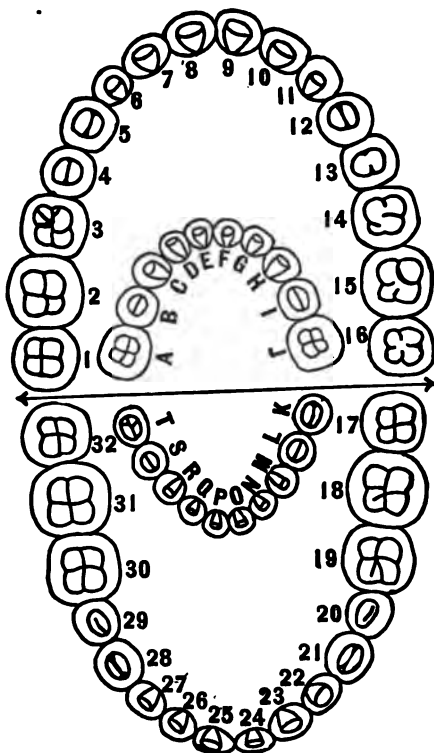
DENTAL DISPENSARY DAILY REPORT.

Dispensary..... CHICAGO....., 191..

Operation.	Treatments.														Fillings.					Extractions.		Total number of operations.		
	Prophylaxis.	Analgesic.	Arsenical application.	Dehydrating application.	Cocaine pressure extirpation.	Pulp capping.	Devitalized pulp removal.	Formocresol.	Sulphuric acid.	Root filling.	Counterirritant.	Abcess opened.	Surgical dressing.	Grinding unsavable root.	Amalgam.	Oxyphosphate of zinc.	Oxyphosphate of copper.	Gutta-percha.	Temporary filling.	Porcelain crown.	Permanent tooth.		Deciduous tooth.	
Number cases..																								
Time present.....	Number patients.....														Number completed.....								D. D. S.	
Number of new cases.....																								
Nurse in attendance.....																								

DENTAL RECORD.

Name..... Address.....
 School..... Grade..... Age..... Nationality.....



Condition of mouth: Good.....; fair.....; bad.....
 Condition of gums: Good.....; fair.....; bad.....
 Use toothbrush: Yes.....; No.....
 Have teeth been filled: Yes.....; No.....
 Mal-occlusion: Yes.....; No.....
 Palatal defect: Yes.....; No.....
 Remarks:

Followed up.....
 D. D. S.
 Examiner.
 Nurse.

DEPARTMENT OF HEALTH, CITY OF CHICAGO.

REPORT OF VACCINATIONS.

[This monthly report of vaccination is to be made out and forwarded to the chief medical inspector at the close of each month.]

Name of school.....
 Report for the month of....., 191..
 Number of tubes of glycerinated vaccine received during the month.....
 Number of tubes of glycerinated vaccine used during the month.....
 Total number of primary vaccinations performed (successful).....
 Total number of primary attempts at vaccination with failure.....
 Total number of revaccinations performed (successful).....
 Total number of attempts at revaccination performed with failure.....
 Number of previous vaccinations examined and certificates issued therefor.....
 Kind of vaccine used and laboratory numbers of same.....

....., M. D.,
 Medical Inspector.

DEPARTMENT OF HEALTH, CHICAGO.

To the parents of

(Pupil's name.)

Your child (named above) is not properly protected against smallpox. It should be vaccinated at once.

You owe it to your child to protect it against the most horrible of all diseases—smallpox.

Either take this child to your family doctor or give your permission to have it vaccinated (free) by the school doctor. The purest vaccine will be used.

Do you consent to having your child vaccinated by the school doctor.

Answer "Yes" or "No" here.

(Sign your name here.)

Return this card, signed, to the school-teacher.

(See other side.)

DIVISION OF CHILD HYGIENE—PARENT'S CONSENT CARD.

To the parents of

Address

Your child attending the school
shows evidence of the following condition:

In the interest of the child's welfare kindly give permission to have a thorough examination of the child made by the school doctor.

Parents can be present at the examination if they desire.

Please sign this card and return it to the school.

C. B. YOUNG,
Commissioner of Health.

Parent's signature

DEPARTMENT OF HEALTH, CITY OF CHICAGO.

Dispensary Date

Name

School Room No.

Appointment.			Leave school.	Ar- rived at dis- pen- sary.	Leave dis- pen- sary.	Ar- rived at school.	Appointment.			Leave school.	Ar- rived at dis- pen- sary.	Leave dis- pen- sary.	Ar- rived at school.
Hour.	Month.	Day.					Hour.	Month.	Day.				

BOARD OF EDUCATION, EDUCATIONAL DEPARTMENT.

No.

CHILD-STUDY LABORATORY.

RECORD CARD FOR CRIPPLED CHILDREN.

Name.....
 Parent or guardian.....
 Address.....
 Nationality and language of home.....
 Place of birth.....
 Date.....year.....month.....day.....
 Date of birth.....year.....month.....day.....
 Age.....years.....months.....days.....
 School.....(Teacher.....)
 Name of medical examiner.....
 History of case.....
 Disposition of case.....

PHYSICAL CONDITION.

Vision, right eye.....
 Vision, left eye.....
 Hearing, right ear.....
 Hearing, left ear.....
 Nutrition—
 Character of skin and hair.....
 Anæmic.....
 Tongue, coated, furrowed.....
 Teeth, decayed, serrated, irregular.....
 Nature of affliction:
 Tuberculosis—
 1. Pulmonary.....
 2. Glandular.....
 Sinuses, character of discharging, raw, partially healed, scars.....
 3. Osseous and arthralgic.....
 Spondylitis.....
 Hip disease.....
 Knee joint.....
 Ankle and other forms.....
 Sinuses, character of—discharging, raw, partially healed, scars.....
 Neuroses—
 1. Infantile cerebral paralysis.....
 2. Infantile spinal paralysis.....
 3. Hemiplegia.....
 4. Paraplegia.....
 Upper.....
 Lower.....
 5. Chronic hydrocephalism.....
 6. Pseudo-hypertrophy.....
 Specific.....
 Injuries and deformities.....

MENTALITY.

School standing:
 Grade.....
 Time in school.....
 Progress.....
 Imitation, ability to duplicate movements and sounds:
 (a) Simple.....
 (b) Complex.....
 Suggestibility, ability to express movements or thoughts from cues:
 (a) Immediate.....
 (b) Remote.....
 Reproduction, immediate—sense memory:
 (a) Movements.....
 (b) Objects seen.....
 (c) Words seen.....
 (d) Numerals seen.....
 (e) Words heard.....
 (f) Numerals heard.....
 Perception:
 Card sorting.....
 “A” test.....
 Association and comparison; translating from one sense to another:
 Numeral-color association.....
 Numeral-symbol association.....
 Part-whole association.....
 Remarks.....

BOARD OF EDUCATION, CITY OF CHICAGO.
OFFICE OF SUPERINTENDENT OF SCHOOLS.
File No. Child-Study Department.

**SPECIAL REPORT OF PRINCIPAL ON PUPIL RECOMMENDED FOR EXAMINATION BY
THE CHILD-STUDY DEPARTMENT.**

To the Superintendent of Schools:

..... School. 190..

Character of case.....
(State whether deaf, blind, crippled, backward, imbecile, or pulmonary tuberculosis.)

Name of child.....

Parent or guardian.....

Home address.....

School history:.....

Age.....

Grade.....

Time in grade.....

Remarks.....

(Signed)

Principal.

[Data to be filled at the office of the superintendent.]

Referred to district superintendent.....

Date.....

Date returned.....

Recommendation.....

Referred to child-study department.....

Report of examination: By.....

Date.....

Recommendation.....

Disposition.....

BOARD OF EDUCATION, CITY OF CHICAGO, EDUCATIONAL DEPARTMENT.

No.

CHILD-STUDY LABORATORY.

By whom referred.....

Name.....

Name of parent or guardian.....

Address.....

School.....; Room.....

Grade..... No. of weeks in grade.....

Teacher.....

Date..... year..... month..... day.....

Date of birth, year..... month..... day.....

Age..... years..... months..... days.....

Nationality and language of home.....

Age of brothers and school record.....

Age of sisters and school record.....

Age of brothers and sisters dead.....

Causes of their deaths.....

Health of father..... good..... fair..... poor.....

Health of mother..... good..... fair..... poor.....

Age of father..... mother.....

Hygienic condition of home..... good..... fair..... poor.....

Garbage..... sewerage..... noise.....

Food..... Education of parents.....

Aesthetic and moral influence.....

Family history—neurotic..... tubercular..... alcoholic.....

Specific..... etc.....

Development.—Dentition, 1st..... 2d.....

walking....., talking....., fontanelles....., con-

trol of fundamental reflexes.....

Health record:

Diseases—Measles....., mumps....., whooping cough....., scarletina....., scarlet fever....., diphtheria....., meningitis....., epilepsy....., chorea....., scrofula....., tonsillitis....., other diseases.....

Accidents and operations.....

General health tonus: Infancy..... childhood..... at present.....

Nutrition..... anemic..... pallor.....

Skin: Dry....., moist....., oily.....

Hair: Dry and gritty..... growth irregular.....

Circulation: Hands, cold..... purple.....

School standing:

Best work in.....; poorest work in.....

Department.....

Is the child lazy....., inattentive....., dull.....

stupid....., stubborn....., unruly.....

selfish....., untruthful....., cruel.....

slovenly....., excitable....., ill-tempered.....

Anthropometric tests:

Net height....., height sitting....., weight.....

Head measurements: Length....., breadth.....

height....., circumference....., cephalic index.....

Lung capacity.....

Strength of grip: Right hand....., left hand.....

Motor ability: (a) Tapping rate, right hand

10s..... 20s..... 30s.....; left hand

10s..... 20s..... 30s.....

Anthropometric tests—Continued.

Observations.....
 (b) Precision tests: Right hand....., left hand.....

Sensory tests:

Visual acuity: Right eye.....; left eye.....
 Observations.....
 Auditory acuity: Right ear.....; left ear.....
 Observations.....
 Pressure threshold.....
 Aesthesiometric threshold.....

Perception tests:

(a) Size: (1) Dermo-muscular.....; (2) muscular.....
 (b) Form: (1) Münsterberg's touch exp.....; (2) Jastrow's sorting exp.....
 (c) Weight: (1) Active.....; (2) passive.....
 (d) Time:.....
 (e) Brightness: Sorting of grays.....
 (f) Color: (1) Least perceptible difference (reds).....; (2) sorting colors.....
 (g) Movement:.....
 (h) Symbols: Marking out "A's".....
 Total time.....; Accuracy.....
 Motor time.....
 Finding time.....

Association:

Color-numeral.....
 Symbol-numeral.....
 Part-whole.....
 (a) Simple.....
 (b) Complex.....

Attention:

Natural.....
 With distraction.....

Memory tests:

(a) Immediate sense—
 1. Numerals seen.....
 2. Numerals seen and spoken.....
 3. Words seen.....
 4. Words seen and spoken.....
 5. Objects seen.....
 6. Objects seen and names spoken.....
 7. Numerals heard.....
 8. Numerals heard and spoken.....
 9. Words heard.....
 10. Words heard and spoken.....
 11. Smells.....
 (b) Associational—simple.....
 (c) Logical.....

OBSERVATIONS.**Growth:**

Obese.....
 Emaciated.....
 Bilateral asymmetry.....
 Deformities.....
 Scoliosis.....
 Lordosis.....
 Chest sunken.....
 Hydrocephalic.....
 Microcephalic.....

Growth—Continued.

Cranial asymmetry.....
 Forehead retreating.....
 Forehead narrow.....
 Forehead low.....
 Facial asymmetry: Forehead.....; nose.....; eyes.....; ears.....; mouth parts.....
 Ears deformed.....
 Dentition: Teeth irregular.....; doubled.....; serrated.....; pointed.....; chalky.....
 Palpebral fissures small.....
 Nasal bones sunken.....
 Adenoidic.....
 Mouth breathing.....
 Palate: Narrow.....; high.....; asymmetrical.....
 Tongue: Thick.....; flat.....; pointed.....; furrowed.....; papillae hypertrophied.....; coated.....

Movement:

Sluggish.....
 Restless.....
 Incoordinated.....
 General balance relaxed.....
 Asymmetrical posture.....
 Asymmetrical head balance.....
 Overaction of frontals.....
 Corrugation.....
 Incoordination of eyes.....
 Relaxed orbicularis oculi.....
 Hand balance: Asymmetrical.....
 Tense.....
 Relaxed.....
 Drooped.....
 Finger twitchings.....
 Eyelid twitchings.....
 Tongue twitchings.....

Defective speech:

Hesitation.....; lisping.....
 Stammering.....; stuttering.....
 Improper pronunciation of.....

General observations on mental action:

Judgment erratic.....; mind wandering.....; choleric.....; choleric.....; sanguine.....; phlegmatic.....; sullen.....; silly.....; face immobile.....; timid.....; bold.....; curious.....; indifferent.....; affectionate.....; repellant.....
 Sensitivity: Good.....; fair.....; poor.....
 Perceptive ability: Good.....; fair.....; poor.....
 Memory: Good.....; fair.....; poor.....
 Ability to reason: Good.....; fair.....; poor.....
 Mental prognosis: Good.....; fair.....; poor.....
 Is able to work with number combinations to.....
 Is able to read well—fairly well—poorly—lesson..... in the..... reader.

REMARKS AND RECOMMENDATIONS.

BOARD OF EDUCATION, NEWARK, N. J.

.....**School**

To make a thorough examination of the heart and lungs it is usually necessary to remove all or a part of the clothing which covers the chest and back. This is done by the school physician with the least possible exposure of the body. In case boys or girls are timid or sensitive, they will be examined alone in the doctor's office, provided the parent wishes it. In case of girls, clothing will not be removed except in the presence of a woman, mother, nurse, teacher, or clerk. *Mothers are invited to be present at the examination if they desire.*

Please state below, in the manner directed, whether you wish your child examined under the above conditions.

.....Principal.

I wish my child (children) examined by the school physician as above.

(Signed)

Parent or Guardian

In case no reply is received from you within two days, it is understood that you consent to having your child (children) examined.

DEPARTMENT OF MEDICAL INSPECTION, BOARD OF EDUCATION, NEWARK, N. J.

The following is a report of nurse No.....for.....191..

Schools visited.	
Number of classes inspected.	
Lectures delivered.	
Old cases.	
New cases.	
Cured.	
Old.	Visits to homes.
New.	Taken to dispensary or physician.
Examined for uncleanliness.	
Pediculosis.	
Acute conjunctivitis.	
Scabies.	
Ringworm.	
Impetigo.	
Favus.	
Eczema.	
Molluscum con.	
Infected wounds.	
Vaccination dressings.	
Others.	
Total.	
Suspected contagious diseases.	
Pediculosis.	
Uncleanliness.	
Others.	

.....Nurse.

BOARD OF EDUCATION, NEWARK, N. J.

WEEKLY WEIGHT RECORD.

[illegible]

SOCIAL CONDITIONS.

The home.	The family.	Economic condition.	The child.
Number of rooms.....	Total number:	Rent.....	Food:
Cleanliness: Good; fair; bad.	Adults.....	Income.....	What?.....
Character: Good; fair; bad.	Children.....	Charity received.....	Fried?.....
Ventilation: Good; fair; bad.	Boards.....	Who works?.....	Beverage: Tea, coffee, wine, beer, whisky.
Child's sleeping room:	Parents alcoholic: Yes; no.		Sleep: How much.....
Light; fair; dim.	Illness in—		Work: Yes; No. What?
Ventilation: Good; fair; bad.	Who?.....		Play out; how much?...
Number in rooms.....	What?.....		Bath: How often?.....
Number in bed.....	Attend clinic?.....		

Action taken:

(Continued on reverse side.)

BOARD OF EDUCATION, NEWARK, N. J., DEPARTMENT OF MEDICAL INSPECTION.

PHYSICAL RECORD.

Name..... Age..... Address.....
 School..... Grade....., 19..

- | | |
|---|---|
| 1. Nutrition: Bad; good. | 10. Defective nasal breathing: Yes; no. |
| 2. Enlarged cervical gland: Yes; no. Anterior; posterior. | 11. Teeth: Bad; good. |
| 3. Chorea: Yes; no. | 12. Deformed palate: Yes; no. |
| 4. Cardiac disease: Yes; no. | 13. Impediment in speech: Yes; no. |
| 5. Pulmonary disease: Yes; no. | 14. Hypertrophied tonsils: Yes; no. |
| 6. Skin disease: Yes; no. | 15. Posterior nasal growth: Yes; no. |
| 7. Deformed spine: Yes; no. Chest: Yes; no. | 16. Mentality: Bad; good. |
| Extremities: Yes; no. | 17. Treatment necessary: Yes; no. |
| 8. Defective vision: Right eye; left eye. | 18. Nationality..... |
| 9. Defective hearing: Yes; no. | 19. Date of your inspection..... |
| | 20. Remarks..... |

Form 801 signed: Yes; no.

Medical Inspector No.

(On reverse side: Improvement noted on reexamination.)

BOARD OF EDUCATION,
 Newark, N. J.,

The medical inspector of this school finds no evidence of successful vaccination on the person of.....
 In accordance with the rules of the board of education such evidence of successful vaccination is necessary or your child can not be admitted to school.

Please have your child vaccinated at once by your family physician; or, in case you wish your child vaccinated by the medical inspector (which will be done free of charge), sign your name in the space below and return this card at once.

Principal.

(Signature of parent or guardian.)

BOARD OF EDUCATION, NEWARK, N. J.

PRINCIPAL'S REPORT ON MEDICAL INSPECTION.

Month ending..... School.
 Inspector..... Absent..... Days.
 Substitute inspector..... Date.....
 Substitute inspector..... Date.....
 Substitute inspector..... Date.....
 Number of class rooms inspected..... Number of rooms fumigated.....
 Number of pupils excluded by principal..... Number of visits by nurse.....
 Number of lectures..... Date.....
 Subject.....
 Remarks.....
 Principal.

NEWARK, N. J.,, 191..

The {nurse
(physician)} has this day visited my classroom and examined pupils.

(Signed), Teacher.

[This notice must be sent to the principal the same day inspection is made.]

BOARD OF EDUCATION, NEWARK, N. J.,
Department of Medical Inspection,, 191...

Principal School.

....., residing at is
..... granted a permit to attend school beginning
..... provided an examination by the medical inspector on
his} arrival discloses no evidence of disease.
her}.....
Supervisor of Medical Inspection.

BOARD OF EDUCATION, NEWARK, N. J., DEPARTMENT OF MEDICAL INSPECTION.

Examined in Supervisor's Office.

Accompanied by

Date

Name,

Address,

Newark, N. J.

School Grade

Age Vaccination inspection

Family history:

Mother's name

Father's name

Previous history:

Present history:

(Reverse side: Physical examination.)

Physical examination:

General condition

Nutrition

Weight

Height

R. E. V.

L. E. V.

Ears

Teeth

Nose and throat

Heart

Lungs

Skin

Orth.

Nervous

Mental status

Von Pirquet skin test Hæmoglobin

Given

Inspected

Reaction

Diagnosis

Prognosis

Recommendations

Subsequent examination

Remarks

BOARD OF EDUCATION, NEWARK, N. J.

School.....Room No.....
 Name.....Address.....
 Date.....Sent to medical inspector for.....

Diagnosis.....	Treatments by nurse.....
Referred to—Physician or dentist—Dispensary—Nurse.....	Dates.....
.....excluded—Date.....	
Returned—Date.....	
Results—Cured—Improved—Not improved.....	Total number of treatments.....
Medical inspector.....	Nurse.....

Diag.....
 To Teacher—
 is referred for treatment to nurse—Dispensary or dentist—Family physician.
 He (she) is.....excluded from the class room until you receive notice for his (her) return.
 Medical Inspector.

NEWARK DENTAL CLINIC ASSOCIATION,

74 Newton Street—553 Market Street.

Name.....
 Address.....
 Referred by.....
 School.....

[This notice does NOT exclude the pupil from school.]

BOARD OF EDUCATION, DEPARTMENT OF MEDICAL INSPECTION,

Newark, N. J.,19.....

The parent or guardian of.....at.....
 is hereby informed that a physical examination by the Medical Inspector seems to show the following abnormal condition:

.....
 You are requested to take this child and the card to your family physician or clinic for advice and treatment.

Medical inspector,.....

GEO. J. HOLMES, M. D.,

Supervisor of Medical Inspection.

(Filled out on reverse side by physician.)

.....191.....

REPORT OF INVESTIGATION OF QUARANTINED PUPIL.

Name.....Address.....
 Age.....Attending.....School.....
 Nature of disease.....Date of origin.....
 Relation of applicant.....Character of house.....
 Number of brothers and sisters attending school.....
 Physician attending patient.....
 Date of last being in house of contagion.....
 Intelligence and reliability of parents.....
 Present address.....
 Remarks.....
 Permit.....Date.....

Sanitary Inspector.

BOARD OF EDUCATION, NEWARK, N. J. DEPARTMENT OF MEDICAL INSPECTION.

HOME VISITS.

Nurse district No.Date.....191..

Name.	Address.	School.	Disease.	Time of visit.	Results.
..... a. m.	.....
..... p. m.	.....
..... a. m.	.....
..... p. m.	.....

BOARD OF EDUCATION, NEWARK, N. J.,

Department of Medical Inspection,191..

I, parent of.....living at.....herewith request that the nurse of the department of education adopt such procedures for the proper care or treatment of such diseases or defects as in her judgment are necessary for the cure of my child.

(Signed)

DEPARTMENT OF MEDICAL INSPECTION, BOARD OF EDUCATION, NEWARK, N. J.

INSTRUCTIONS TO PARENTS REGARDING THE CARE OF THE MOUTH AND TEETH.

The physical examination of school children shows that in many instances the teeth are in a decayed and unhealthy condition.

Decayed teeth cause an unclean mouth. Toothache and disease of the gums may result.

Neglect of the first teeth is a frequent cause of decay of the second teeth.

If a child has decayed teeth, it can not properly chew its food. Improperly chewed food and an unclean mouth cause bad digestion, and consequently poor general health.

If a child is not in good health it can not keep up with its studies in school. It is more likely to contract any contagious disease, and it has not the proper chance to grow into a robust, healthy adult.

If the child's teeth are decayed it should be taken to a dentist at once.

The teeth should be brushed after each meal, using a tooth brush and tooth powder.

The following tooth powder is recommended: Two ounces powdered precipitated chalk, $\frac{1}{2}$ ounce powdered castle soap, 1 dram powdered orris root. Thoroughly mix.

This prescription can be filled by any druggist at a small cost.

The child should take the tooth brush and powder to the school and receive instructions from the nurse as to their proper use.

RINGWORM.

Directions: Remove the scales with soap and warm water. Dry thoroughly and apply the medicine morning and night until disease is cured.

R_x

[To be filled at a drug store.]

Tincture of iodine..... 10
Alcohol..... 20

M. Sig. Apply once a day until the disease has disappeared.

The following method of treatment for the itch is recommended:

Before going to bed wash the body well with soap and hot water, and when dry rub this ointment thoroughly, 20 minutes, over the whole skin. Do not bathe for three days. All bedclothing and clothes that have been worn next the skin must be boiled before using again.

R_x

[To be filled at drug store.]

Sulphur..... 7.50
Beta naphthol..... 7.50
Lard q. s..... 90

M. Sig. Apply as directed.

CONTAGIOUS IMPETIGO.

Directions: Wash the affected parts with warm water and soap. Apply the ointment morning and night until the disease has disappeared.

R_x

[To be filled at a drug store.]

Resorcin..... .15
White precipitate..... .50
Lard q. s..... 15

M. Sig. Apply morning and night until the disease is cured.

BOARD OF EDUCATION, NEWARK, N. J.

RECOMMENDATION FOR SPECIAL CLASS FOR MENTALLY DEFECTIVE CHILDREN.

Child's name (Family) (Given)
 Grade. School. Principal.
 Birth: Date Place
 Order Boy. Girl. White. Colored.
 Parent's name Residence
 Occupation Birthplace Educated. Can read and write. Illiterate.
 Date of examination Examined by
 Mental development as indicated by test years. Age, years.
 Family history:
 Medical—Feeble-mindedness, insanity, nervous disorder, alcoholism, tuberculosis, sickness or accident to mother before birth of child.
 Social—
 Financial—Well-to-do, moderate, poor.
 Housing—
 Entire house, number of rooms
 Apartment, number of rooms
 Tenement, number of rooms
 Home treatment—Good care, neglect, brutality.
 Number of normal—Living, dead. Feeble-minded—Living, dead.
 Brothers Sisters
 Personal history and characteristics:
 Medical—
 Injury to head—At birth; after birth.
 Acute illness—Scarlet fever, diphtheria, meningitis, convulsions, early malnutrition.
 Bad companions, truant, lies, cheats, steals, profane, smokes cigarettes, vicious habits.
 Dependable, willing and tries, good natured, affectionate.
 Apathetic, restless, mischievous, quarrelsome, obstinate, incorrigible, marked peculiar traits.
 Nerve-muscular coordination:
 Speech—Clear, indistinct, thick, inarticulate, fluent, slow, hesitating, mute, lisp, stammer.
 Facial expression—Intelligent, stupid, happy, sullen, animated, apathetic, nervous.
 Posture—Stooping, erect, spinal curvature.
 Gait—Normal, lively, shuffling, unsteady, clumsy.
 School history:
 Schools attended—City, country, or institution (specify).
 Standing—Months in present grade Months in preceding grade Prospects of promotion—
 Good, fair, poor, none.
 Attendance—Regular, irregular, punctual.
 Arithmetic—Good, fair, poor.
 Writing—Good, fair, poor.
 Spelling—Good, fair, poor.
 Reading—Good, fair, poor.
 Language—Good, fair, poor.
 Drawing—Good, fair, poor.
 Attention—Good, poor.
 Memory—Good, poor. Common sense.
 Physical condition—Height inches. Weight pounds. Miscellaneous

Medical inspector's last record.

Eyes.	Ears.	Nose.	Throat.	Skin.	Orth.	Nervous.	Teeth.	Nutrition.

Remarks

To the principal: Kindly see that the above form is filled out as accurately as possible. The data may be obtained from parents, children, and teachers, as well as from your personal knowledge of the case.
 Please underline the descriptive words applicable to this case, and return the blank as soon as possible to the city superintendent of schools.

Present examination by committee.

Eyes.				Ears.	Nose.	Throat.	Skin.	Orth.	Nervous.	Teeth.	Nutrition.	Miscellaneous.
V. R.	V. L.	H. F. R. L. sq.	Glasses date child.									

Diagnosis:

Degree of mentality—Dull, backward, backward-emotive, feeble-minded, imbecile, idiot.

Etiology

Recommendations: Medical, social, educational, special class for backward—feeble-minded—disciplinary cases.

RECORD BLANKS FOR REVISED BINET TESTS.

DEPARTMENT OF RESEARCH TRAINING SCHOOL, AT VINELAND, N. J.

Name..... Born..... Admitted.....
 Examined..... Mental age.....

III

1. Points to nose, eyes, mouth.
2. Repeats "It rains. I am hungry."
3. Repeats 7 2.
4. Sees in picture 1. , 2. , 3. , 4. , 5. , 6. , 7. , 8. ,
5. Knows name.

IV.

1. Knows sex, boy or girl (girl or boy)
2. Recognizes key, knife, penny.
3. Repeats 7 4 8.
4. Compares lines.

V

1. Compares 3 and 12 grams. 6 and 15 grams.
2. Copies square (draw on back of this sheet).
3. Repeats, "His name is John. He is a very good boy."
4. Counts four pennies.
5. "Patience."

VI.

1. Morning or afternoon (afternoon or morning).
2. Defines fork, table, chair, horse, mama.
3. Puts key on chair; shuts door; brings box.
4. Shows right hand; left ear.
5. Chooses prettier? 1 and 2. 4 and 3. 5 and 6.

VII.

1. Counts 13 pennies.
2. Describes pictures. (See III 4).
3. Sees picture lacks eyes, nose, mouth, arms.
4. Can copy diamond (over).
5. Recognizes red, blue, green, yellow. (Time 6'')

VIII.

1. Compares (time 20'') butterfly, fly, wood, glass, paper, cloth.
2. Counts backward 20-1 (time 20'').
3. Repeats days. M. T. W. T. F. S. S. (Time 10'').
4. Counts stamps. 111222 (time 10'').
5. Repeats 4 7 3 9 5.

IX.

1. Makes change 20c.—4c.
2. Definitions (see VI 2).
3. Knows date.
4. Months. J. F. M. A. M. J. J. A. S. O. N. D. (time 15'').
5. Arranges weights (2 correct) 1' each). 1. 2. 3.

X.

1. Money 1c. 5c. 10c. 25c. 50c. \$1. \$2. \$5. \$10.
2. Draws design from memory (show 10 seconds).
3. Repeats 8 5 4 7 2 6. 2 7 4 6 8 1. 9 4 1 7 3 8.
4. Comprehends:
 1st series time 20'' (2 out of 3)—(a) missed train, (b) struck by playmate, etc., (c) broken something.
 2d series time 20'' (3 out of 5)—(a) late to school, (b) important affair, (c) forgive easier, (d) asked
 opinion, (e) actions & words.
5. Sentence: Philadelphia, money, river. (Time 1').

XI.

1. Sees absurdity (3 out of 5) (time 2'): (a) Unfortunate painter, (b) three brothers, (c) locked in room,
 (d) railroad accident, (e) suicide.
2. Sentence: Philadelphia, money, river (See X 5.)
3. Gives sixty words in three minutes (record on back).
4. Rhymes (time 1' each) (3 rhymes with each word): Day, spring, mill.
5. Puts dissected sentences together. (Time 1' each): a. b. c.

XII.

1. Repeats 2 9 6 4 3 7 5. 9 2 8 5 1 6 4. 1 3 9 5 8 4 7.
2. Defines charity, justice, goodness.
3. Repeats, "I saw in the street a pretty little dog. He had curly brown hair, short legs, and a long tail."
4. Resists suggestion (Lines). 1. 2. 3. 4. 5. 6.
5. Problems: (a) Hanging from limb; (b) neighbor's visitors.

XV.

1. Interprets picture.
2. Change clock hands. 6.20— 2.56—
3. Code. Come quickly.
4. Opposites: (1) good, (2) outside, (3) quick, (4) tall, (5) big, (6) oud, (7) white, (8) light, (9) happy, (10) false.

ADULT.

1. Cutting paper.
2. Reversed triangle.
3. Gives differences of abstract words.
4. Difference between president of a republic and a king.
5. Gives sense of a selection read

STATE REGULATIONS OF NEW JERSEY.

BOARD OF HEALTH OF THE STATE OF NEW JERSEY.

DIVISION OF MEDICAL AND SANITARY INSPECTION.

RECORD OF SANITARY INSPECTION OF SCHOOL BUILDING.

1. Name of school building.....
2. Location.....; town.....; county.....
3. School district.....
4. Name and post-office address of principal.....
5. Name and address of secretary of the board of education or district clerk.....
6. Total number of classrooms.....
7. Enrollment of pupils.....; average daily attendance.....
8. Size of lot.....
9. Surface covered by buildings.....
10. Height of building.....
11. Date of erection.....
12. Material of construction.....
13. Nearness and height of surrounding buildings.....
14. Fire escape on building.....
15. Yard, for what purpose used.....
16. Privy vault on premises.....; size.....; location..... condition.....
17. Jaspool.....; construction.....; condition.....
18. Any objectionable accumulation on premises or adjoining premises?.....

CELLAR.

19. Cellar under entire building.....
20. Depth beneath ground surface.....
21. Material and condition of cellar bottom.....
22. Number and size of windows.....
23. Is cellar well lighted?.....
24. Is cellar damp?.....

PLUMBING, DRAINAGE, AND WATER-CLOSET APARTMENTS.

25. Is building connected with sewer?.....
26. Any leaks or defects noted in drains?.....
27. Size and location of water-closet apartments.....
28. Material and condition of floors.....
29. Number and size of windows opening to outer air.....
30. Ventilation of apartment.....
31. Cleanliness of apartment.....
32. Number and style of water-closets.....
33. Are water-closets in good repair?.....
34. How flushed.....

35. Number and style of urinals.....
36. Are urinals in good repair?.....
37. How flushed?.....
38. Cleanliness of fixtures.....
39. Any disinfectant or deodorant used in fixtures or apartment?.....; kind.....
40. Are there facilities for pupils to wash hands after using closets or urinals?.....

HEATING, LIGHTING, AND VENTILATION.

41. Method of heating.....
42. Method of lighting.....
43. Method of ventilation.....
44. Location of fresh-air intake.....
45. Size and construction of fresh-air duct.....
46. Any visible sources of contamination of fresh-air supply?.....

WATER SUPPLY.

47. Source of water supply.....
48. Is water supply delivered through tank?..... Location.....; condition.....
49. Location of well.....
50. Is well driven or dug?.....
51. Depth.....; how covered.....
52. Surroundings.....
53. Sample taken.....; number.....; result.....
54. Are drinking cups used in common?.....
55. Are there drinking fountains in building? Number.....; location.....

HALLS.

56. Length.....; width.....; height.....
57. Exits.....
58. Light.....
59. Ventilation.....
60. Do doors swing in or out?.....
61. Cleanliness of hall.....

CLASSROOMS.

62. Designate room.....; grade.....; total enrollment; greatest average attendance for any preceding month.....
63. Size: Length.....; width.....; height.....; cubic contents.....
64. Square feet of floor space per pupil.....
65. Cubic feet of air space per pupil.....
66. Number and size of windows.....
67. Percentage of light to floor space.....
68. Light enters from east, west, north, south.....
69. Are there window shades to control volume of light?.....
70. Desks face east, west, north, south.....
71. Color and finish of ceiling and side walls.....
72. Do doors swing in or out?.....
73. If swinging doors, have they plate-glass panels?.....
74. Style of desks and seats.....
75. How frequently are seats and desks adjusted to pupils?.....
76. Adjustment at time of inspection.....
77. Material of construction and condition of floor.....
78. Number, size, and location of fresh-air inlets in classroom.....
79. Number, size, and location of vitiated air outlets.....
80. Amount of fresh air entering through inlets per minute.....
81. Temperature of air at inlet.....; outlet.....; at breathing line.....
82. Humidity of air in room.....
83. Was air tested for CO₂?.....; result.....; at what time.....
84. Weather conditions and temperature of air out of doors.....
85. Objectionable odors noted in air in classroom?.....
86. Are furnishings and ledges free from dust?.....
87. Any facilities for washing hands?.....
88. Are clean towels and soap provided?..... Kind of towels.....
89. Are slates used by pupils?.....; if so, how cleaned?.....
90. Are individual pencils and penholders used?.....

91. Are pencils and penholders distributed and collected daily?..... Are they disinfected after each collection?..... How?.....
92. Location of cloak room.....
93. Separate compartment for each pupil?.....
94. Light and ventilation of cloak room.....
95. Is approach to fire escape clear?.....

MEDICAL INSPECTION.

96. Name and address of medical inspector.....; date of appointment.....
97. Frequency of inspector's calls.....
98. Has board of education adopted rules for guidance of medical inspector?.....
(Procure copy if available.)
99. Are blank forms used by medical inspectors in making records?.....
(Procure copy if available.)
100. Number of lectures given before teachers by medical inspector during each term.....
101. Are unvaccinated pupils or teachers permitted to attend school?.....
102. Number of unvaccinated pupils in school.....; teachers.....
103. Are pupils or teachers residing in dwellings in which infectious disease exists excluded from school?....
104. Are pupils and teachers required to present a written permit upon return to school after exclusion on account of infectious disease?..... Who issues permit?.....

JANITORIAL SERVICE.

105. Method, frequency, and time of sweeping classroom floors.....
106. How is dust removed from furniture and ledges?.....
107. Are floors oiled?.....; how frequently.....
108. Method and frequency of scrubbing floors.....
109. Method and frequency of cleaning desk tops, chairs, handrails, door knobs, and casings.....
110. Method of disinfecting schoolrooms after a case of infectious disease occurs.....; by whom performed?.....
111. Describe any appliances for disinfecting kindergarten equipment.....
112. How frequently used?.....
113. Has school a gymnasium?..... Are there special instructors?.....
114. Any facilities for bathing?.....; describe them.....

Date.....

....., Inspector.

AMERICAN SCHOOL HYGIENE ASSOCIATION.

QUESTIONNAIRE.

[PREPARED BY THE COMMITTEE ON THE STATUS OF MEDICAL INSPECTION OF THE
AMERICAN SCHOOL HYGIENE ASSOCIATION.¹]

1. Is there any organized system of medical inspection of school children in your town?
2. Does this embrace inspection of children for the detection of (a) contagious disease, and (b) remediable physical and hygienic defects?
3. Do you follow up cases of contagious disease, remediable physical defect, and hygienic imperfection?
4. What per cent of children thus followed up receive legitimate treatment by reputable physicians?
5. State the number of schools under supervision.
6. Give the total population of all schools.
7. How many schools are visited daily by the medical inspector?
8. Are parochial, private, or any other than public, supervised by the medical inspector?
9. What is the average number of children under the supervision of one inspector, and how often are the individual children seen by the inspector?
10. Does the city provide free baths in the school buildings or in other places for the use of the school children.
11. How extensively are these baths used, and what is their sanitary supervision?
12. Do the medical inspectors visit the homes of absentees to learn the reason of their absence?
13. Do the pupils provide their own writing utensils?
14. How are the materials, as pencils, paper, clay, books, etc., collected and stored in the classroom?

¹ See American medical association. Committee on medical inspection of schools. *Its Journal*, 57: 1761-57, Nov. 25, 1911.

15. Are the books of one pupil disinfected before being passed on to another pupil? If so, how?
16. What disposition is made of school books and other material which has been used by a child ill with contagious disease or used in a family where contagious disease existed?
17. Is there any systematic vaccination of school children by medical inspectors in the schools?
18. Is a certificate of successful vaccination required before child is allowed to enter school?
19. Does the city conduct a system of nursing?
20. What are the duties of the nurse?
21. How many schools does a single nurse cover?
22. What is the average number of children assigned to a nurse?
23. What is the area covered by a nurse?
24. Does the nurse or teacher in any way perform the functions of the medical inspector?
25. Is there any system of permanent record of the physical condition of a child kept in the school?
26. Is the medical supervision of school children under the department of health or the department of education, or established by private philanthropy?
27. If in the department of education, in what division—physical education, or school hygiene or other department?
28. What is your individual estimate of the value of medical inspection of school children in (1) improving the hygienic conditions at school, (2) improving the school efficiency of the children; (3) improving the attendance, (4) improving the morale of the school community, with particular reference to truancy, incorrigibility, etc.?
29. Will you please cite any remarkable instance of improvement in the school children after physical or hygienic defects have been remedied?
30. What instruction does your system give in oral hygiene and constructive dental work? What cooperation do the local dentists afford?

AMERICAN ACADEMY OF MEDICINE.

HEALTH SURVEY OF PUPILS, TO BE MADE BY THE TEACHER AT THE BEGINNING OF THE TERM.¹

A. GENERAL APPEARANCE.

1. Is the child healthy appearing?.....
2. Is the color good?.....
3. Is he physically well developed?.....
4. Is he free from apparent deformities?.....
5. Has he a good standing posture?.....
6. Has he a good sitting posture?.....
7. Are the shoulders even?.....
8. Does the child walk normally?.....
9. Are the heels of the shoes worn evenly?.....
10. Is the physiological age of the child apparently equal to his chronological age?.....

B. MENTAL CONDITIONS.

1. Is the child normally advanced in school?.....
2. Is he mentally alert?.....
3. Does he answer ordinary questions intelligently?.....
4. Does he play normally?.....

C. NERVOUS CONDITIONS.

1. Is the child good tempered?.....
2. Is he free from abnormal emotions?.....
3. Does he have good powers of muscular coordination?.....
4. Is the child free from spasmodic movements?.....
5. Is he free from the nail-biting habit?.....
6. Does he speak without stammering?.....
7. Is he free from pronounced peculiarities such as irritability, timidity, embarrassment, cruelty, moroseness, fits, general misbehavior, etc.?.....
8. Is he apparently free from bad sexual habits?.....
9. Is he free from so-called "bladder trouble" (requests to "go out")?.....
10. Is he usually free from headache?.....

¹ Reprinted as an outline for the health grading of the school child. See Hoag, E. B. The teacher's relation to health supervision in schools, etc. American academy of medicine. Bulletin 13: 127-134, June, 1912.

D. TEETH.

1. Are the teeth clean?.....
2. Are the teeth sound?.....
3. Are the six-year molars in good condition?.....
4. Has the child been to a dentist within six months?.....
5. Are the teeth regular?.....
6. Does the child use a toothbrush every day?.....
7. Are the gums free from abscesses?.....
8. Are the gums healthy looking?.....
9. Are the upper teeth straight (not prominent)?.....
10. Have decayed teeth been filled?.....

E. NOSE AND THROAT.

1. Does the child breathe with the mouth closed?.....
2. Is he free from nasal discharge?.....
3. Is he free from "nasal voice"?.....
4. Has he a well-developed face?.....
5. Has he a well-developed chin?.....
6. Has he straight, even teeth?.....
7. Is the child mentally alert?.....
8. Is he usually free from sore throat?.....
9. Is the hard palate wide (not high and narrow)?.....
10. Is the hearing good?.....

F. EARS.

1. Does the child usually answer questions without first saying "What"?.....
2. Is he fairly attentive?.....
3. Is he fairly bright appearing (not stupid)?.....
4. Does he have a voice with good expression (not expressionless)?.....
5. Does he spell fairly well?.....
6. Does he read fairly well?.....
7. Is he free from earache?.....
8. Does he hear a watch tick as far as the average child?.....
9. Is he free from ear discharge?.....
10. Is he free from any peculiar postures which might indicate deafness?.....

G. EYES.

1. Are the child's eyes straight?.....
2. Is he free from chronic headache?.....
3. Does he do his work without fatigue?.....
4. Is he free from squinting or frowning?.....
5. Is the child free from postures which might indicate eye defects, such as leaning over too near the desk, holding the head on one side, etc.?.....
6. Are the eyes free from redness and discharge?.....
7. Are the eyelids healthy looking?.....
8. Can the child read writing on the board from his seat?.....
9. Have the eyes been tested separately with the Snellen test type?.....

H. COMMUNICABLE DISEASES OF THE SKIN.

1. Is the head free from any signs of disease (lice, ringworm)?.....
2. Is the skin of the face, hands, wrists, forearms, chest, free from red, somewhat circular patches (ringworm)?.....
3. Is the skin of the face, hands, and forearms free from infected spots with crusts and pus (impetigo)?.....
4. Is the child free from red scratched lines and spots on the hands, wrists, forearms, chest, and between the fingers (itch)?.....

I. ERUPTIVE CHILDREN'S DISEASES.

Is the child free from the following general early indications of contagious diseases?

1. Flushed face.....
2. Lassitude.....
3. Vomiting.....
4. Eruptions.....
5. Congested eyes.....
6. Discharging eyes.....
7. Nasal discharge.....
8. Persistent cough.....
9. Scratching.....
10. Sleepiness.....

APPENDIX B.

(See p. 34.)

SHAWAN, Jacob Albright. School activities in relation to children's eyes. *In* National education association of the United States. Journal of proceedings and addresses, 1911. Published by the association, 1911. p. 1063-70.

A résumé of information being gathered through questionnaire sent out by N. E. A. Committee appointed at the Boston meeting of the Department of special education, 1910, "to study and report on the conservation of vision. This committee consists of an ophthalmologist, a psychologist, an illuminating engineer, a publisher, and a superintendent of schools. Its object is to study not only school conditions with reference to the use and abuse of vision, but other conditions. . . . The committee has so far planned to investigate the following phases of the subject: 1. The physiology and pathology of vision. 2. Illumination, both natural and artificial. 3. Objects of vision, including books, writing tablets, blackboards, etc. 4. The psychology of vision, especially with reference to conduct. 5. The legal aspects of the problem of the conservation of vision with special reference to legislative regulations.

"This paper is . . . a partial report of one member of the committee and is confined to one phase of the subject.

"A comprehensive questionnaire has been prepared and 3,000 copies sent to superintendents and principals of schools in the United States. . . .

"Out of 736 answers . . . 456, or 59 per cent, have the eyes of children examined periodically. . . . Out of 504 answers, the following facts are deduced: 326, or 42 per cent, of the examinations were made by teachers; 138, or 17.7 per cent, of the examinations were made by physicians; 30, or 3.9 per cent, of the examinations were made by teachers, physicians, and ophthalmologists; 10, or 1.5 per cent, of the examinations were made by ophthalmologists and specialists."

Summary:

"First, light should be admitted to the schoolroom from the left of the pupils with a window space equal to not less than one-fifth of the floor surface.

"Second, a shiny surface, whether the blackboard or printed page is injurious and should be avoided.

"Third, the type used for printing school books should be large and clear.

"Fourth, the amount of work requiring pencil or pen should be limited.

"Fifth, correction of the differences in refractive power of the two eyes should be discovered and promptly made by the use of proper glasses.

"Sixth, where the power of vision is limited it should be conserved and developed by proper eye-training, either by segregation or by the omission of certain subjects of study."

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A TRADE SCHOOL FOR GIRLS

A PRELIMINARY INVESTIGATION IN
A TYPICAL MANUFACTURING CITY
WORCESTER, MASS.

BY THE RESEARCH DEPARTMENT OF THE WOMEN'S
EDUCATIONAL AND INDUSTRIAL UNION OF BOSTON,
UNDER THE DIRECTION OF SUSAN M. KINGSBURY
AND MAY ALLINSON





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INTRODUCTION.

This study of the needs and possibilities of the industrial training of girls and women by the city of Worcester, Mass., was made in the spring and summer of 1911. Three cities, Worcester, Cambridge, and Somerville, through their respective school committees, expressed a willingness to establish trade schools for girls and asked the State board of education through its agents to aid them in the task of setting up the kind of school which would best meet the vocational needs of the female wage earners and receive the approval of the State board of education for State aid under the Massachusetts statutes.

The board having no force available for carrying on such an investigation, the service of the research department of the Women's Educational and Industrial Union was secured, and a thorough study of the conditions to be met and the kind of schools that needed to be adopted in order to meet them was carried on by this department under the direction of Dr. Susan M. Kingsbury, ably assisted by Miss May Allinson and a corps of young women who, through fellowships awarded by the union, were fitting themselves for social research.¹ The reports resulted in the establishment of trade schools for girls which are now in successful operation in the three cities.

The conditions at Worcester were somewhat more favorable for the research work, and the report upon that city was fuller and perhaps, on the whole, more thoroughgoing. It is presented herewith.

The publication of this material is timely. Communities which are about to engage in vocational education would do well to remember David Crockett's maxim, "Be sure you're right; then go ahead." The task of training young people to meet the varied and complex demands of trade, and of fitting them at the same time for good citizenship, is not a simple one; it is most difficult. We know very little about the industrial conditions under which young people work, and probably less about the things that they need to know in order to be successful in their work. The Worcester report indicates the many problems that need to be taken into consideration in setting up a course of study and a scheme of training for any group of female

¹Miss Mary Rock, Miss Lorinda Perry, and Miss Elizabeth Riedell held the fellowships for the year 1910-11.

wage earners. Every city in the country, at least of any size, needs to some extent at least just the kind of investigation that Worcester made before entering actively upon the task of establishing vocational schools of any kind.

In addition the report is valuable and timely in pointing out (1) the relationship of the public schools to the problem of industrial efficiency; (2) the responsibility which the regular schools must assume for the vocational welfare of the retarded child who leaves the schools at or about the age of 14, below grade, undirected, and unprepared for life work; (3) the different questions, topics, or problems connected with the employment of girls, particularly those who are engaged temporarily in low grade, skilled, and unskilled industries which need to be investigated; (4) the method which should be employed in order to secure facts through the public school system, through the officer who issues working certificates, and through the factories in which the girls are employed; (5) the way in which an investigator familiar with the problems of industrial education draws conclusions from the data which have been gathered and shapes them into recommendations as to the kind of school and the course of study which the situation requires.

Like all studies which have to do with young wage earners, this report adds, and adds in an effective way, to the information which has been so rapidly accumulated within the past two or three years concerning (1) the great army of young girls who go out to employment as soon as they have passed beyond the reach of the compulsory law; (2) the number of girls and women who are employed in undesirable industries; (3) the lack of opportunity for advancement and better wage earning which confronts the average female wage worker; (4) the low intellectual status and ideals of the typical factory girl; (5) the kinds of industries which retarded and backward girl pupils enter; (6) the instability of female as well as male workers in many industries; (7) the fluctuating character of their employment, and (8) the low wage which most of them are able to earn. Worcester is a typical manufacturing city. If there is any difference, its conditions are better than those usually encountered in the industrial centers of this country. The situation which this report uncovers there may be regarded as being on the whole no worse, certainly, than that to be found anywhere in industrial America.

One of the most helpful things which this report does is to call attention to the fact that the character of the trade school established for girls in any city must be entirely dependent upon the conditions which it must face. There has been danger that, carried away by the splendid success of the Manhattan Trade School for Girls in New York and the Boston Trade School for Girls, places of less size and with far different problems might blindly duplicate the organization

and the courses of study of these two institutions. The proximity of the three cities, particularly Cambridge and Somerville, to the city of Boston, and the intimate knowledge which Dr. Kingsbury and her associates had of the shops and factories in Boston and of the history and service of the Boston Trade School for Girls, made it possible for them constantly to point out the differences between Boston and the three cities which were investigated, and the differences between what Boston must do through its trade school for girls and what should be done by Worcester, or Cambridge, or Somerville.

We need more reports like this, but to be effective they must be made by those who have had some contact with vocations and with vocational education. The demand for this kind of work is growing. Unhappily, there are few indeed who can combine with the investigator's skill the knowledge of what to investigate, how to investigate it, and how to interpret the facts gathered. The rapid development of vocational education and vocational guidance is opening a new field of social research. The harvest is ripe, but the laborers few.

C. A. PROSSER,

*Secretary National Society for the
Promotion of Industrial Education.*



A TRADE SCHOOL FOR GIRLS: A PRELIMINARY INVESTIGATION IN A TYPICAL MANUFACTURING CITY, WORCESTER, MASS.

PREFATORY NOTE.

The movement for trade training for girls has been growing rapidly in Massachusetts since the first commission on industrial and technical education made its report to the legislature in 1906. In the fall of 1911 three cities—Worcester, Cambridge, and Somerville—were seeking State aid in the establishment of a public trade school for girls.¹ The board of trustees of the independent industrial schools in Worcester and the superintendents of schools in Cambridge and Somerville headed the movement in their respective cities.

The State board of education, as well as the local boards, realized the necessity of knowing local conditions and needs in each individual city before definite action is taken in establishing such a school. They faced three main questions when contemplating the establishment of a trade school: First, what is the need of a trade school for girls? Second, what kind of a trade school should be established? Third, what would be the probable number and the personnel of the prospective students of such a school? The answer to the first question necessitated a study of what girls are doing after they leave school, and the corresponding home conditions. The second question could be answered only after discovering where and what were the demands for young girl workers. The third question required a knowledge of social conditions of the home, ambitions of the parents, and educational advancement of the children.

The State board of education, therefore, called in the aid of a department of research for information along these lines. It was arranged that one investigator should spend the month of November in each of the three cities, believing that enough information could be secured within one month to meet the immediate problems which confronted the school authorities. Delays in securing the cooperation of the various assisting agencies, and the large field to be covered extended the study to 5 weeks in Somerville, 6 weeks in Cambridge, and 9 weeks in Worcester.

¹ An act to establish the commission on industrial education, 1906, ch. 505, provides for State aid in the establishment of local public trade schools under certain required conditions of cooperation.

The field work of the investigator had two phases—visits to industrial establishments and visits to the homes of 14 to 16 year old girls who had left school to go to work in the past year. The short time allotted to the investigation necessitated the employment of short-cut methods, which might not be advisable in a more extensive study, but which proved sufficient to supply the needed information for the problems at hand. The knowledge of industrial conditions was obtained by visits to a representative number of typical establishments in the various industries of each city. The knowledge of social and economic conditions necessary to explain the large annual exodus of girls from the schools was obtained by the study of home and school conditions of one year's outgoing group, or only a part of the group in the larger city of Worcester. Moreover, the limited time did not permit interviews with the girl herself. The home was visited, but the desired information was secured from the parent.

The first step in the study of industrial conditions was to secure a knowledge of the women-employing industries and to choose representative establishments. This task was greatly simplified by the courtesy of Chief Whitney, of the district police, who granted access to the reports of the factory inspectors. Through these records it was possible to gain some conception of the size and importance of various establishments and to make corresponding selections. With such a basis, the type study may be said to represent conditions fairly.

The initial stages of the investigation of 14 to 16 year old girls leaving school were worked out in the public schools. Several hundred individual schedules drawn up by the deputy commissioner of education were sent to the schools to be filled out by the teachers from the school records, in accordance with directions issued by the deputy commissioner. The investigator completed the schedule by visits to the homes.

The reports of the investigation in the three cities reveal certain points of similarity and certain points of dissimilarity. The points of similarity seem to prove that certain uniform conditions exist, and may, therefore, be accepted as typical of the educational and industrial situation throughout the State, especially as they are distinctly confirmatory of the conclusions reached by the commission on industrial and technical training in 1906. The points of dissimilarity prove the imperative need and value of local studies wherever trade training is contemplated.

The fundamental facts which the similarity of conditions proves may be stated as follows:

The large factories or mills are receiving the great majority of 14 to 16 year old girls who are leaving school to go to work in our State.

The number of 14 to 16 year old girls leaving school to go to work is increasing. The records of Worcester and Somerville¹ show a marked increase in the past five years. The percentage of girls going to work is much greater than the percentage of increase in population.

The majority of young girls who leave school to go to work are only 14 years of age. They are dropping out, therefore, as soon as the law allows. Sixty per cent of such girls in Worcester, Cambridge, and Somerville in the school year of 1909-10 were 14 years of age.² Does this mean that the majority have completed the work of the grammar school? Does it mean that severe economic pressure is driving 14 year old girls to work?

The work offered in the grammar schools has been completed by only a small proportion of the 14 to 16 year old girl workers in each of the three cities. Thirteen per cent of the girls from the Somerville schools graduated. Seventeen per cent, so far as the Worcester records enlighten us, completed the ninth year. Twenty-three per cent of the girls from the public schools of Cambridge had graduated, but total returns, including girls from the parochial schools, would probably lower this percentage. The proportion of girls who left school having completed the grammar grades in these three cities in 1910, therefore, agrees very closely with the proportion, one-sixth, discovered throughout the State in 1906.³

There is a large loss of girls in the sixth and seventh grades. A large number have then reached the age of 14 and can secure working papers. One-third of the girls who left the public schools of Cambridge and all the schools of Worcester dropped out in the sixth and seventh grades. A much larger proportion, two-thirds, dropped out of the sixth and seventh grades of the Somerville schools. Forty-three per cent dropped out of the sixth and seventh grades throughout the State in 1906, according to the State study based on 5,447 children.⁴ The length of schooling or the completion of the grammar grades, therefore, is not necessarily the determining factor in the large outgo of girls from the grammar schools.

Who decides that the child shall leave school? Is economic pressure in the home driving the girls of 14 to 15 into the factories and mills? Because of the limited time for the study, it was deemed impracticable and unnecessary to go into details regarding the economic status of the family. Questions as to exact incomes and

¹ Comparative statistics could not be secured for Cambridge, as the age and schooling certificates previous to September, 1909, had not been preserved.

² This percentage is, however, based on different figures in each of the three cities. The total number of certificates issued to 14 to 16 year old girls in Worcester was about 700, Somerville, 251. The percentage for Cambridge considered 226 girls reported by the public schools. Certificates were issued to 452 girls from 14 to 16, of whom 243 were from the public schools and the remainder from parochial schools. The records had not been kept and hence were not available.

³ Report of the Commission on Industrial and Technical Education, 1906, p. 85.

⁴ *Ibid.*, 102.

rents were not attempted. Questions, however, were asked regarding the occupation of father, mother, and other members of the family, character of these occupations, illness, home conditions, and the opinion of the parent—which was checked up by that of the investigator—as to ability to give the girl longer schooling. These detailed statistics were secured for the State in 1906 by the commission on industrial and technical training. The investigation of 1906 was a more statistical study, and it covered a much wider area. The present studies were less statistical, but intensive in particular local areas. By carefully checking up conclusions deduced from the present study with those gained from the study of 1906, the director of the investigation has felt justified in presenting the conclusions reached.

Fully 50 per cent of the 14 to 16 year old girls studied¹ in each of the three cities did not leave school because of economic pressure. In 1906 it was found that 76 per cent of the children studied in all parts of the State were economically able to have had further schooling, if persuaded of the advantage.² The percentage which has been deduced in the present studies is very conservative for two reasons: First, because the conclusion was based on general rather than detailed statistical information; second, because it was deemed advisable to report a conservative number of possible prospective students.³

The 14 to 16 year old girls who go to work, with very few exceptions, enter unskilled industries which offer little or no opportunity for rise or development. The instability of these young workers is a universal problem in all three cities. The elementary processes which occupy young or inexperienced workers are purely mechanical. The work of the beginner, even in the better trades, does not afford training or working knowledge of the more skilled work. The work in unskilled trades points to nothing higher or better. The work is monotonous, easily learned, and the maximum pay, which is small, is soon reached. The beginner becomes discouraged with the lack of opportunity for advancement and determines to try something else. She drifts from place to place and never becomes proficient in any one thing. "One-half the girls," remarked the superintendent of the largest corset factory in Worcester, "get discouraged before they reach the point of maximum speed, and quit when they are probably just about to strike a paying point." A large rubber factory in Watertown (adjoining Cambridge) which employs 1,600 workers at any one time reports that 4,500 were enrolled on the pay

¹ Worcester—314 of the total 727 were followed up; 214 were located and interviewed. Cambridge—236 of the total 243 leaving the public schools were followed up; 187 were located and visited. Somerville—146 of the total 261 were located and visited.

²Report on Industrial and Technical Education, p. 92.

³For this reason the total number studied, rather than the number reporting on a specific question, has been used throughout as the basis for computing percentages.

roll in the past year. A jewelry factory in Somerville reports that 5 out of every 6 workers leave in a year; another says the whole force shifts every year. Employers in all three cities say that a large proportion of the workers is continually fluctuating. The monotonous repetition of work, inability to meet the demands of the trade, inefficiency, discouragement, and the seasonal fluctuation are producing an army of fluctuating, unskilled, low-paid workers which involves many industrial, economic, and social complications. Large establishments in the three cities are attempting to solve the problem by various methods. None has yet attempted to solve the problem through systematic training of their workers.

While these general conditions of a phase of the so-called social unrest prevail from city to city, the relief is so closely associated with the industrial opportunity that local study at once becomes imperative. What the schools are doing, what the children are needing, what the business establishments are demanding, seems to be uniform from community to community. What the school can do, what the family may expect, seems to depend on the industrial character of each locality.

Although the work for young girls is unskilled in all large factory industries, the processes open to the more mature women may require a certain degree of skill or manual dexterity and offer a correspondingly higher wage.

A study of the women-employing industries of Worcester and Cambridge shows that the largest industries which employ women do require some skill. Machine operating on clothing occupies almost one-half of the women working in factories in Worcester. Rubber goods, bookbinderies, and presses employ almost one-half the women working in Cambridge. There are, however, practically no provisions in the trade for training or preparing the beginner for the more skilled processes. The result is large waste, incompetence, and instability of the labor force, and scarcity of skilled workers.

The necessity for local study is well illustrated by the differences in these three cities. Worcester is the third manufacturing city of New England, with a population of more than 145,000. It is a political, industrial, and social entity, resulting in a lack of interchange of work and workers with Boston. It is, on the other hand, near enough to Boston to give opportunity for an interchange of custom and customers. Therefore, although the more skilled trades have a great insufficiency of skilled workers, the city is too far away to draw workers daily from Boston. Because of the lack of high-grade work, however, the wealthy people of Worcester come to Boston for their more expensive costumes.

Cambridge, a city of more than 100,000 inhabitants, presents a different situation. Although a political entity, it is industrially and

economically dependent on the various surrounding cities, as they are in turn dependent on Cambridge. This results in an exchange of work and worker, as well as of custom and customer. Cambridge, therefore, sends out skilled and unskilled workers to surrounding cities. Her large factories, on the other hand, employ women not only from Cambridge, but from surrounding cities. The university draws large numbers of transient residents. Its suburban character makes it the residence of many people who work in Boston. Such conditions partially explain the large development of laundries in Cambridge, which employ a large number of women. Its suburban character partially explains the investment of Boston and outside capital in large factories.

Somerville, a city of more than 77,000 inhabitants, is primarily a residence suburb. Only a few, small, scattering, low-grade industries exist. Although a political entity, Somerville is an industrial and economic dependency of Boston, Cambridge, and surrounding cities. It sends its skilled and its unskilled workers out to surrounding commercial and manufacturing cities.

The women-employing industries of Worcester show a tendency to group in four large divisions: Machine operating,¹ textiles, wire and metal goods, and envelopes and paper goods. The first group only, the machine-operating trades, offers opportunity to a large number for a medium degree of skill and wage. The highly skilled trades, dressmaking and millinery, show little development. They employ and offer opportunity to only a comparatively small number.

The women-employing industries of Cambridge show greater diversity, though rubber goods and bookbinderies employ more than 40 per cent of the women working in Cambridge. The highly skilled trades show very little development. The women-employing industries of Somerville are practically negligible.

What significance have these conditions for the problem of industrial training in each of the three cities?

In Worcester, the machine-operating trades employ large numbers of workers. There is a great scarcity of help. Training therefore in machine operating for a large number of girls would seem to benefit the worker by preparing her for the more skilled processes of the trade. A knowledge of the operation of the machine would lift the worker over the preliminary stages of unskilled work which prove a great sifting process and are a fundamental cause of instability of the workers. The skilled trades need only a small number of beginners each year, hence only a few should be trained for the shop. A large number of dressmakers are day workers or private workers. The problem for solution is to equip young girls for this

¹ Machine operating is used in this study to indicate the manufacture of corsets and other women's wear as a factory product.

broader field of the day worker, without the intermediary experience in the shop.

In Cambridge and Somerville the skilled trades show very little development, but Boston offers opportunity for prospective workers. Training might therefore well be offered in dressmaking and millinery. The workers can secure their preliminary experience in the shops of Boston and later return to their home town as independent workers, as the shops of Boston provide the intermediate as well as the advanced stage for the girls trained in dressmaking and millinery in Cambridge and Somerville. In Worcester that opportunity is lacking. The large industries of Cambridge offer little opportunity for training outside the factory. Boston, again, offers opportunity for the worker who is capable of a medium degree of skill and who must acquire immediate economic independence or partial independence. The machine-operating factories of Boston are in great need of skilled workers. The young girls of Cambridge and Somerville may well be trained and find opportunity for development in these factories of Boston.

Local conditions need careful study therefore in determining the character of trade training or continuation schools. Worcester has a purely local problem. Public money expended in training and developing her young prospective workers gives returns in more efficient workers, greater stability, and better social and economic conditions for the wealth-producing industries of the city. Cambridge and Somerville will necessarily be training and developing workers for the industries of other surrounding cities. Worcester need concern herself with the problem of part-time instruction in her own local industries only. Cambridge and Somerville must concern themselves with the problem of their workers in surrounding cities. Worcester is an independent entity from an educational, economic, and industrial point of view. Cambridge and Somerville can not become independent from an educational point of view any more than they can from an economic or industrial standpoint. Only by intensive cooperation with surrounding cities, therefore, can the people of Cambridge and Somerville meet the needs and demands of the girl.

There are advantages, however, as well as disadvantages in the dependence on surrounding cities. The workers of an industrially independent city like Worcester may be deprived of opportunity for development and experience in highly skilled trades. The workers of an industrially dependent city may have the advantage of access to the skilled trades of a neighboring city.

A knowledge of local conditions is therefore essential before action can be taken in the establishment of trade training or part-time schools. Satisfactory results and efficient work can come only

with a thorough understanding and careful consideration of existing conditions, needs, and opportunities in localities where such schools are to be established. A knowledge of the processes of the trade, the possibilities of cooperation between school and industry, the natural ability of the children and what they can do in the schools and in the factory, is necessary to enlightened policy. Interest on the part of the community as well as close cooperation with those who control the industrial situation is essential to success.

I. THE METHOD OF INVESTIGATION.

A brief survey of the methods and sources of information used in the study of a single city with a view to discovering the need of and opportunity for industrial training is presented as showing the validity of the study, and as suggestive for future study for similar purposes.

THE SCHEDULES.

Two schedules were used—one for the interview with the individual and one for the interview with the employer.

(A) The individual schedule was drawn up by the deputy commissioner of education and was "designed to be used by schools for the primary purpose of ascertaining the probable number and identity of the girls who may become pupils in a free public trade school if one should be organized in the future."

This schedule was planned to cover three types of pupils: (1) the pupil who has left school within the past school year; (2) The pupil over 14 who is still in school, and (3) the pupil between 13 and 14 who is still in school. (See accompanying blank.)

INDIVIDUAL SCHEDULE.

.....	Pupil who has left school.....
(City or town.)	Pupil over 14 who is still in school.....
..... School Bldg.	Pupil between 13 and 14 who is still in school....
	(Indicate by the mark (X) which of the above describes the pupil named below.)

(Blank for use in investigating the need for the industrial training of girls.)

1. Name of pupil.....
2. Date of birth.....
3. Age last birthday.....
4. Parents' or guardian's name.....
5. Nationality of father..... Of mother.....
6. Place of residence.....
7. Present or last year in school.....
8. Type of pupil: (a) Application.....; (b) Scholarship.....
- (c) Conduct.....

(Use the terms good, fair, and unsatisfactory.)

9. Health and strength:

(1) Do you regard her as normal or below normal in health and strength?.....

(2) Is she mature or young for her years?.....

10. Has she displayed skill or interest in practical work of any kind?.....

11. Do you think she will be more successful in trade work or in other kinds of work?

.....
(Use the expressions "in trade work" and "not in trade work.")

12. Which of the following things does the girl and which do the parents wish to do?

PARENT. GIRL.

1. Withdraw her from school.....

2. Place her in a local free public trade school if offered.....

3. Retain her in regular public school work.....

(Write the word "Yes" on the appropriate line and in the appropriate column.)

13. If given an opportunity would she probably attend a local free public trade school?.....

14. Economic and educational status of family:

(Father)

(Mother)

Occupation of father and mother.....

Permanent..... Seasonal..... Temporary.....

(Write the word "Yes" after permanent, seasonal or, temporary.)

Occupation of other members of family..... Illness in family.....

Educational status of family.....

(Use terms "educated," "intelligent," "ignorant.")

15. Are her parents able to send her to a one-year course in a local free public trade school?.....

A two-year course?.....

16. What are her home conditions?.....

(Use the terms "comfortable," "lacking in comfort," and "poor.")

17. Where, if anywhere, has she been employed?.....

(Give places, if possible.)

18. What wages did she first receive?.....

19. What is present wage received?.....

These schedules were distributed through the public schools with instructions to the teachers for filling out questions 1 to 11 from the public school records. It was hoped that the teachers might also answer in part at least, from their general knowledge of the pupils, items 12, 13, 14, 15, and 16, with respect to pupils still in school. The schedules were then turned over to special investigators, who followed to their homes a large proportion of the pupils who had left school in the past year, in order to complete the information required by questions 11 to 19.

Experience has shown the advantage of some changes in method of attack and plan of schedule in any future study. The original plan provided for an investigation of two distinct types of children—those out of school and those in school. The results obtained through the investigation seem to indicate the advisability of making each group the subject of a distinct and separate study. The statistical and intensive study of the children who have left school might best

be turned over to expert investigators, and the study of the children still in school left to persons connected with the schools. After the survey was completed, therefore, the directors of the investigation drew up a schedule designed for the pupil who has left school during any one year to be presented to the board of education as a working schedule. They feel, however, that the study of children still in school should be for the purpose of vocational guidance, and should be conducted on a distinctly different basis. No schedule is therefore suggested for this purpose.

The directors would urge that this schedule be filled for all girls who have left school in the year preceding the study. The proposed schedule would consist of two separate sheets, one dealing with the school history of the child and one with the economic situation. The first sheet, covering items 1-10, would be filled in by the teacher as before; items 1-6 from the school records; and 7-10 by the teacher, *with the aid of the investigator*. The second sheet would be filled in by the investigator through visits to the homes of these girls. (See following blanks.)

INDIVIDUAL SCHEDULE I.

(To be filled in by teacher and investigator.)

Pupil who has left school within last year:

.....	Name.....
(City or town.)	
.....School bldg.	Address.....
.....Teacher.	

1. Parent's or guardian's name.....
2. Nativity of father..... Of mother
3. Date of birth of girl Age last birthday
4. Grade of leaving school Date
5. Type of pupil: (a) Application..... (b) Scholarship..... (c) Conduct.....
6. Health and strength:
 - (1) Do you regard her as normal or below normal in health and strength?.....
 - (2) Is she mature or young for her years?.....
7. In what subjects is she deficient?.....
In what subjects does she excel?.....
8. In what practical work, if any, has she displayed skill or interest?.....
9. What is the reason she left school?.....
10. If given an opportunity would she probably attend a local free public trade school?.....

INDIVIDUAL SCHEDULE II.

(To be filled in by investigator.)

1. Economic status of family.....

	Occupation.	Wage.	Character of occupation.	Regularity of occupation.
Father.....
Mother.....
Other members...

(For Character of occupation, use terms Permanent or Temporary; for Regularity of occupation, use terms Seasonal or Regular.)

Members not at work

2. Home conditions..... Grade of family.....

(Use terms or describe as to degrees. For Home conditions use terms Comfortable, Lacking in comfort, Poor.)

3. Rent paid..... Illness in family.....

4. Educational status of family.....

(Use terms Educated, Intelligent, Ignorant.)

5. Extent of parents' interest in trade school.....

(Based on parent's statement.)

6. Are parents able to send girl to local free public trade school?.....

(Based on investigator's impressions.)

7. Reason why girl left school

8. In what practical work if any does she excel?.....

9. Supplementary schooling:

(1) Has girl attended any other than regular day school?.....

(Public, evening, trade school, business, art, or any other day or evening school.)

(2) Length of time.....

(3) Department of the school.....

9. Business experience of girl:

Firms. Occupations. Wages. Length of time.

1.
2.
3.
4.

(B) The firm schedule was designed for a study of the industry, and was drawn up by the directors of the investigation.

FIRM SCHEDULE I.

FIRM.	ADDRESS.	PRODUCT.	TRADE.
.....			
CONDITIONS OF INDUSTRY { Regular..... Seasonal.....			
SEASONAL WORK { Time of max. emp..... Total No. emp..... Time of min. emp..... Total No. emp.....			
Dull season: Distribution of work.....			
Change in..... Efforts to regulate.....			
WOMEN WORKERS—Supply..... Source..... Homes.....			

	Schooling.	Age.	Nationality.	Experience.	Physical characteristics.
Type desired.....					
Type in shop.....					

Age groups—No. between 14-16..... Age of majority.....
 LEARNERS, GIRLS—No..... Per cent unsuccessful and reason..... Lowest age accepted.....
 Training—Kind..... Length of time.....
 Qualities desirable.....
 Suggestions for trade training.....

The investigation has shown that item 1, "Conditions of industry," is unnecessary, as no industry has yet been discovered which does not show fluctuation or seasonal aspect. This conclusion is borne out by the Twelfth United States Census tables of numbers of wage earners employed by months. "Change in" is also unnecessary. On Schedule II, an additional column under "Number employed" for "Girls" (including girls over 14 and under 16) should be inserted.

FIRM SCHEDULE II.

FIRM..... ADDRESS.....

KINDS OF OCCUPATIONS.	No. employed.		General, sectional, team work.	Weekly wages.					Remarks.
	Men.	Women.		Min.	Max.	Maj.	Time.	Piece.	

BASIC PRINCIPLES OF PROCESS.....
 HOURS..... Daily..... Weekly..... Noon.....
 WORKROOM..... Lighting..... Ventilation..... Space..... Cleanliness.....
 Legal observances.....
 INTERVIEW WITH..... Date..... Investigator.....

The study of the children who had left school in the preceding year inspired the desire to know if the conditions discovered for this single group of girls were representative. A small card with 6 questions was accordingly drawn up, and with the cooperation of firms and forewomen put into the hands of the workers of some of the

large factories of Worcester as a test case. The returns were not as complete as might have been secured if the investigators could have personally supervised filling in the cards, and we should advise this in the future if permission could be obtained from the firm. The results, did, however, confirm the impressions gained from the study of a single year's group of girls going to work. The third question did not draw as satisfactory results as desired and would be better worded thus: "Were you compelled to leave school to go to work?"

Questionnaire for women factory workers.

1. How old were you when you left school?.....
2. In what grade were you when you left school?.....
3. Why did you leave school?.....
4. How long have you been out of school?.....
5. What are the different kinds of work you have done?.....
 - 1st.....
 - 2d.....
 - 3d.....
 - 4th.....
 - Present.....
6. If the school had taught trades would you have stayed a year longer to learn trade work?.....

SOURCES OF INFORMATION.

The age and schooling certificates in Worcester and Somerville provided invaluable statistics as to total numbers, age, and schooling of girls going to work.

Through the courtesy of the chief district police, lists of factories and shops in the records of the factory inspectors of the cities studied were placed at the disposal of the State board of education. These statistics enabled the investigators to discover what industries were drawing the girls and women workers and to select wisely and visit representative establishments. Sixty-three establishments in Worcester were visited, including not only the largest women-employing¹ industries, but also those offering greater opportunity for skill, development, and financial advancement.

The names, addresses, and school history of some 500 girls were secured from the public schools of Worcester. Three hundred were followed to the addresses given, and 214 located and visited. The age and schooling certificates of 727 girls who went to work in the past year, the records of 214 girls visited in their homes, the information gained from visits to 63 establishments, and the factory inspectors' reports, therefore, provide the material for the study of the needs of and opportunity for trade training in Worcester.

¹The term "women-employing" is used in this study to indicate those in which large numbers of women and girls are engaged. The term "girls" to indicate girls 14 and under 16 years of age.

II. INDUSTRIAL OPPORTUNITIES FOR WOMEN IN WORCESTER.

Worcester is one of the great manufacturing cities of Massachusetts. In 1905¹ it ranked third in New England and twenty-ninth in the United States. The knowledge that many women are working in the industries of Worcester and that many girls are commencing work at a very early age has aroused the schools and the community to endeavor to discover what the real conditions are, and what more can be done by the schools to prepare the girls for their life. It has well been said that children may be either "book-minded" or "motor-minded." The "book-minded" take advantage of the present opportunities, continue in one type or another of the schools, and finally enter professional or commercial life. The "motor-minded" girl is one who learns more by seeing, handling, doing things than she does from books. The purpose of this study is threefold: First, to discover what has become of these "motor-minded" girls who have entered industry at 14 or 15 years of age; second, to suggest, if possible, how the schools can persuade them to give a longer period to preparation; and, third, to discover what is the type of preparation which would fit them for the demands of the industries of the community.

It is therefore with these children who have dropped out of school during the past year that this study is concerned. It in no way considers the girls who now remain in school, and can afford a period of four years or more after they have completed the grammar grades; nor does it concern itself in any way with the book-minded child who through accident or temporary discouragement has been forced out of school, but might be influenced to return. It must be kept in mind, therefore, that the study considers the child 14 or 15 years of age, the child whose interests and abilities are for the more active and industrial pursuits.

Three definite lines of attack have been followed in making this study. First, it seemed necessary to gain a general view of all kinds of industries employing women; second, to intensify on those trades which seem to offer to the woman worker the greatest opportunity for self-development, for financial advancement, and for large demand; third, to follow to their homes the girls who had left school to go to work in the past year, to obtain some conception of the economic situation and aims and ambitions of these families. ¶

Although the manufactures of Worcester are more diversified than in many of the New England cities, four great industries, viz, machine operating (manufactures of corsets, women's clothing, shoes, and slippers), textiles, wire and metal goods, and paper products, are the

¹ Census of Massachusetts, 1905; III. Manufactures and trade, XXXIX.

great women-employing industries of Worcester. Accordingly, visits were made to 11 clothing factories, representing all the largest establishments and employing about 1,200 workers; to the 3 largest corset factories (of a total of 6), employing more than 2,000 women and girls; to 3 out of 7 shoe factories, employing about 225 workers; to 6 out of 18 textile mills, employing 800 women; to 1 of the 39 or more wire and metal factories, employing about 150 women; to 3 of the 10 envelope and paper goods factories, employing over 600 women; and to a biscuit factory.

A more comprehensive study of the trades offering a higher grade of work was attempted, and visits were made to 19 dressmakers (1 of whom was conducting the department for custom wear in the largest department store), employing some 200 women, and to 16 millinery establishments (4 of which constituted the millinery department of the 4 largest department stores), employing some 200 women.¹ Worcester is, however, primarily a city of factory industries, which have shown a very rapid growth in the last few years. In 1908,² for instance, 4 corset factories, employing 1,029 women workers, are reported, as compared with 6 corset factories in 1910, employing about 2,000 women and girl workers. The growth of this industry, undoubtedly, partially explains the increase in the number of 14- to 16-year-old girls who are leaving school to go to work.

The problems which concern us in this discussion of the need and opportunity for trade training for women will follow four main lines: (1) The annual exodus of young girls from the grammar schools, with a study of their age, schooling, nationality, and results gained from their early entrance into industry; (2) the industries which these young girls enter; (3) the kinds of work which the young girls do in these industries; and (4) the great women-employing industries in Worcester.

III. THE EXODUS OF YOUNG GIRLS FROM THE SCHOOLS.

A. Number of girls leaving school.—The number of girls under 16 years of age who leave school to go to work has increased 40 per cent in the past five years. From September, 1909, to September, 1910, more than 700 girls³ took out age and school certificates. Five years ago only 513 girls⁴ applied for these certificates, an increase of about 200 in all.

¹ Total numbers of employees or of establishments for industries as a whole are based on the factory inspector's reports, which can be accepted only as indicative rather than statistical.

² Twenty-third Annual Report on Statistics of Manufactures, 1908, p. 25.

³ Number of certificates issued to girls within the past year and preserved in the office of the truant officer. This number probably includes some certificates taken out for temporary work, such as for the Christmas rush in the stores or for the summer vacation. Of 200 girls visited, however, less than half a dozen had taken out age and schooling certificates for temporary employment.

⁴ This number is based on the figures given in the Report on Industrial and Technical Education, 1906, p. 70.

The significance of this increase in the number of girl workers becomes apparent when it is discovered that there was an increase of only 10 per cent in the population during these five years.¹ The increasing number and size of the great factories manufacturing corsets, textiles, and paper goods undoubtedly explains to some extent this increase in the number of girl workers, although the study of three cities, Worcester, Cambridge, and Somerville, seems to reveal a universal increase in the number of girls who go to work under 16.

Is this exodus of physically and mentally immature workers an economic necessity? Is it an ultimate benefit to the child? Is it an economic advantage to the employer? In fact, what is the effect of the large number of girl workers leaving school as soon as the law allows? Such are the questions these data force us to meet.

B. Age of girls leaving school.—These facts concern us all the more when we discover that about 60 per cent of the girls who left school to go to work in the past year were only 14 years of age.²

Let us stop for a moment to see what this annual outgo of more than 700 girls under 16 years of age means to the community as well as to the girls. Are they prepared to take their place in the labor world, where approximately 10,000 women exclusive of home workers were employed last year,³ and what sort of preparation might have been given them?

C. Schooling.—Only 6 per cent of these girls have gone beyond the grammar grades; 8 per cent left school before reaching the sixth grade; about one-third dropped out in the sixth and seventh grades alone, and over one-half left school before reaching the ninth grade.⁴ If all statistics, however, were complete, the proportion in all these groups would probably be larger, as the base used is the total number considered rather than those reporting.

D. Nationality.—It is the natural assumption after visiting the factories to suppose that the exodus of young girls from the schools into the factories can be explained by the fact that large numbers are of southern European birth or descent. It is somewhat surprising, therefore, to find that 31 per cent of the girls who left school without special economic pressure were of Scandinavian, 20 per cent of American, and 20 per cent of Irish descent.⁵

¹ Population of Worcester, 1905—128,135. (Census of Massachusetts, 1905, I.) Population of Worcester, 1910—145,986. (Special statement from Bureau of Labor, December, 1910.)

² Seven hundred and twenty-seven age and schooling certificates issued in the year September, 1909—September, 1910.

Age, under 14, 7; 14 and under 15, 431; 15 and under 16, 177; 16 and under 17, 24; 17 and under 18, 4; unclassified, 84; total, 727.

Under 14 years of age, 7; 11 years and 10 months; 12 years and 2 months; 12 years and 5 months; 2 of 13 years and 10 months; and 2 of 13 years and 11 months.

³ Statistics from reports of factory inspection, together with data gathered from a personal study.

⁴ See p. 56.

⁵ See p. 57. No data were secured on such a large number that the percentages are based here on the number reporting.

The northern European nationalities were also the predominating social elements leaving the schools of Cambridge and Somerville, which seems to indicate that for some reason the children of southern European descent are not found in large numbers through the public-school records. This can probably be explained in three ways. A large number of the children of southern European birth or descent probably receive their schooling in the parochial schools. Some of the young girls observed in the industry were probably 16 or over at the time of their immigration to this country. Finally, there is reason to believe that some children get into industry without certificates, a fact which is also noted in the Government study of women in industry made in 1907.¹

E. Economic and intellectual status of families.—Sixty-six per cent of the girls from 214 homes chosen from typical sections of the city might in the opinion of the visitor have gone on to school. Taking every factor into consideration, however, such as irregularity of parents' work, or father or mother dead, fully one-half, on a very conservative estimate, might have had longer schooling. Fully 55 per cent of the girls who left school in the past year came from really comfortable homes, and 58 per cent from intelligent families.

The importance of these facts becomes apparent when it is discovered that almost one-half of those going to work without special economic pressure were 14 years of age; that 25 per cent had not reached the seventh grade, and 60 per cent could not have passed the ninth-grade test. The surprising fact that one-quarter of those who left school without special economic pressure had not reached the seventh grade emphasizes the need of some kind of training which will capture these motor-minded girls and offer incentive for longer schooling.

Some 30 girls said they did not like school, could not get along with the teacher, were not promoted, or wanted to go to work. Two were working to help pay for a piano. One of these was a cash girl of 14 years who had left the ninth grade to go to work in a department store for \$2, later \$2.50 a week. The other was a girl of 15 from the eighth grade who went to work in a corset factory for \$1 and rose to \$4.82. Another girl was taking music lessons and contributing to the payment on the piano.

Twenty-seven girls were staying at home. In some cases they had left to help at home, while a few had left at a time of temporary stress and then had not returned to school. Four girls had changed places with the mother, who worked in a corset factory, laundry, or some such place, while the girl, whose wage-earning power was small, kept house for the mother or the children. A few were at home

¹ Report on Condition of Woman and Child Wage Earners in the United States, I. Cotton Textile Industry, 1910. (61st Cong., 2d sess., S. Doc. No. 645, 156-162.)

because they could not get along at school, but need not necessarily work.

The standard of living and ambitions of the family are, after all, the determining force. The mother of a family of 8 children living in apparently direst poverty would have been glad to make sacrifices and pinch still further to have her daughter stay in school longer, if she would do so. The mother of another family of 6, living in a nice apartment house, with hardwood floors, piano, and other luxuries, said her daughter wished to stay in school longer, but the burden of supporting the family was too heavy for the father to bear alone; so the girl was taken out of school to go to work. A visit to a Swedish family revealed a carpenter and his wife, a washerwoman, who had just built and owned a nice new three-story apartment house. Yet the 15-year-old daughter with a seventh grade education had been sent to work in a paper-goods factory at \$2 a week.

The question "Why did you leave school?" was put to some 336 more mature workers in the corset trade. Ninety-one per cent of these women had left school between the ages of 13 and 16, and fully 50 per cent because of their dislike of school or because they wanted to go to work. Of 74 workers in a clothing factory, 85 per cent had left school between the ages of 13 and 16, 25 per cent of their own volition.¹

Such facts emphasize the large demand for training which gives opportunity for manual combined with mental development. During these years between the ages of 13 and 15 there is a marked desire for manual or physical activity, a characteristic natural to this stage of physical development, which must find expression in the actual doing of things. The parents of these children leaving school, in many oft-repeated instances, were willing, and, as has been shown, fully one-half were economically able, to have the daughter stay in school longer, but "when she takes a notion in her head, there's no doing anything with her," so she goes to the mill, the factory, or the store at \$1, \$1.50, or \$2 a week, which in many cases is more than she is worth to her employer.

Visits and talks with the families as well as the girls, therefore, reveal a situation which quite contradicts the usual impression that the parent takes the child out of school or forces her to go to work at an early age.

F. Summary.—The foregoing statistics show several most significant facts: (1) That more than 700 girls under 16 years of age took out certificates to go to work in the past year, and that this number is increasing at the rate of 40 per cent, or about 200 girls in five years.

¹ These percentages are very conservative statements. Many workers did not specify whether volition or necessity was the cause of their leaving school, merely answering "to go to work." None of these answers were included in either group in determining the percentages.

(2) That 60 per cent leave at the earliest age the law allows, at 14 years of age. (3) That 8 per cent could not pass the fifth-grade test, one-third could not pass the seventh-grade test, and one-half could not pass the ninth-grade test. (4) That this exodus does not indicate economic necessity. Of 214 families studied, fully one-half the girls were not forced to curtail their education, and 55 per cent were living in really comfortable homes. Furthermore, almost one-half of those children who might continue in school were only 14 years of age, and one-fourth had not reached the seventh grade.

IV. INDUSTRIES WHICH YOUNG GIRLS ENTER.

A popular supposition seems to prevail in Worcester that the majority of young girls who leave the grammar grades go into mercantile establishments. But only 22 per cent, or less than one-fourth of the total number, entered that industry last year. The factories and mills claimed more than three-fourths of them.

Of the latter, the corset factories and the textile and knitting mills. drew 56 per cent of the girls, the corset factories getting 28 per cent, or the largest proportion of the whole. Five other industries claimed the majority of the remaining girls—the manufacture of metal goods, 10 per cent; paper goods, 6 per cent; shoes and slippers, 4 per cent; women's clothing, factory product, 5 per cent; and food and drug products, 3 per cent.¹

But two determining forces appear to decide what industries the most of the girls enter. The young girl who lives in the neighborhood of a large factory or mill is likely to work in the nearest factory during the first few years, but distance from home is a less important factor as she becomes older. The occupation of an older member of the family, primarily the mother or older sister, is a very apparent determining factor. Of the 214 girls visited, about 25 per cent were working in factories where their mothers or sisters were working or had worked.

V. KINDS OF WORK DONE BY YOUNG GIRLS.

A. Unskilled industries.—In all these factory industries² (excluding dressmaking and millinery) the girls of 14 to 16 perform unskilled work. This may assume different forms, as boning corsets or tending machines in the corset factory; running errands; folding waists, dresses, or shirts in a clothing factory; doffing in the textile mills; putting pasteboard sheets into a machine in the paper box factory.

¹ See p. 58.

² This term has been used throughout the report to indicate those industries which are in the process of developing an advanced stage of industrial evolution. Such industries, whether employing a large or small number of workers, show a fairly high subdivision of labor, specialized and repetitious work, use of artificial mechanical power and also that peculiar characteristic which differentiates them from large highly skilled industries—a standardization of process or product.

Whatever the kind of work or process, there is one feature common to all this unskilled work¹—the purely mechanical performance of a monotonous process requiring little thought, intelligence, or ultimate responsibility, and destructive to rather than promotive of the power of initiative and intelligent thinking, and capacity for a higher grade of skill. Since little ability or intelligence is required, the supply of labor for those stages of the work is plentiful, competition great, and pay correspondingly low. Certain of these industries might, nevertheless, appear to be preferable for different reasons for the young girls just out of school. One industry might seem to offer opportunity for financial rise or self-development for the mature worker. Another not having this qualification might be preferable because the type of work and product handled are nice and clean, and the sanitary conditions superior. On the other hand, certain industries might be discouraged for young girls because of the necessity of continuous standing, damp or oppressive atmosphere, or severe physical demands.

It is hardly necessary to discuss here the lack of opportunity and the low wage received by young girls in the three great factory industries—textile mills, metal trades, and paper goods. Besides these disadvantages, we may briefly note the influence of the noise and vibration of machinery, continuous standing, and heavy, oppressive atmosphere on the young girls in the textile mills, which rank second in the number of women employed. The metal trades, which rank third in the number of women employed, make heavy demands on the physical strength of the young workers; so much so that some employers allow women workers to work only one-half day at the machines, and to spend the other half on some process requiring less physical strength. The paper trades, which rank fourth as women-employing industries, offer clean work and pleasant surroundings for the girls. The processes are, however, largely mechanical and monotonous, and the trade does not offer large opportunities for development or financial advancement.

B. Mercantile establishments.—The department stores and shops of Worcester, which draw almost one-fourth of the girls leaving school, might seem to offer a better field and more opportunity for advancement. Girls of 14 to 16, however, must usually begin as cash or floor girls. The much more comprehensive study of 1906² showed that few cash girls rose to the higher position of saleswoman, because of lack of maturity and ability.

C. Medium skilled trades.—Machine operating: The machine-operating trades, such as the corset trade, certain branches of the

¹ This classification is based on the definition and classification used in the Report of the Commission on Industrial and Technical Education, 1906, pp. 33-34.

² Report of the Commission on Industrial and Technical Education, 1906.

women's clothing trade, shoe and slipper trades, under the best conditions would seem to offer a better field and more opportunity for advancement than the other great women-employing industries of Worcester. This is, however, an apparent rather than a real opportunity for the majority of young girls. Although the elementary processes which occupy the young inexperienced girls in these trades do not afford training in or working knowledge of the more skilled work, the most efficient girls are promoted by virtue of faithful service or adaptation to the factory.

D. Instability of workers in factory industries.—The great question, however, is: How many of these girls get beyond the unskilled labor stage and are able to profit by the opportunity for advancement? The preliminary processes, such as boning and machine tending in the corset factories, examining, cleaning, finishing (that is, snipping loose threads or giving any necessary finishing touches) in the women's clothing factories, are purely mechanical processes which more than one foreman has pointed out "don't require any brains or intelligence." The financial compensation naturally is small, based in most cases on the piecework system. Consequently, only those capable of a high degree of speed and application—attributes not characteristic of the 14 or 16 year old girl—can survive. The girl soon tires of the monotonous repetition of work and inability to meet the demands of the trade. Failure to realize sufficient income, inefficiency, discouragement, or slack season usually solves the problem and she determines to try something else.

Does the girl profit by this experience? Does her employer profit by her unskilled and uncertain work? The responses from employers reveal one of the greatest evils of these low-skilled industries, which alone¹ receive young girls—the instability resulting from the constant shifting from factory to factory.

The three corset factories,² employing 320 girls on machines, 93 per cent of the girls under 16 employed in the corset trade,³ reported that a large proportion of the young girls drop out before they are promoted to the more skilled processes because they get discouraged and impatient. "One-half of the girls," remarked one superintendent, "get discouraged before they reach the point of maximum speed, and quit when they are probably just about to strike a paying point." Several factories have adopted various expedients to protect themselves against this shifting of the workers. One corset factory charges the learners the amount equivalent to the loss of time of the one who teaches her. This amount is refunded if she

¹ The proportion of girls 14 to 16 years old taken into millinery and dressmaking is so small in comparison as to be practically a negligible quantity.

² Of the 6 established in Worcester.

³ Numbers based on statistics from factory inspector's report, together with statistics gained from factories visited.

stays six months.¹ In spite of this provision, the proprietor estimates that he loses annually more than \$1,500 on his learners. A clothing factory requires a deposit of \$1 from all learners. Another clothing factory keeps back \$10 for loss of the forewoman's time, which is refunded to the worker at the end of the first year if she is still working in the factory.

Reports from the less skilled industries show a still more serious situation. One of the large paper-goods firms, with a total force of 200 workers, says he "takes on 250 learners during the year and that 50 per cent do not stay long enough to give themselves or the work a fair trial. Many come from curiosity and stay only a week or two, yet each girl has cost several days of the time of a high-priced forewoman." The manager of a biscuit factory employing about 75 workers says the girls stay with the factory only a short time. A wire factory with a still lower grade of work shows still greater fluctuation in the working force. The processes can be learned in a few days and the maximum wage reached in two months. The result is that, although the regular force consists of about 150 women workers at any one time, from 450 to 500 learners pass through the factory in a year, generally staying but a few months.

Shifting for betterment would be advisable if the workers actually bettered their condition. But this is an open question. All learners or inexperienced workers in any trade, whether it offers a future or not, must serve a certain amount of time in the unskilled processes. A large proportion do not stay long enough in any one trade to become skilled workers. The result is an army of drifters and unskilled workers always condemned to irregular and uncertain work, inefficiency, and low pay. The instability and irresponsibility of young workers, together with the efforts of the Consumers' League, have resulted in the exclusion of girls under 16 from the better factories and industries. Five of the eleven clothing factories visited, employing about 750 women workers, do not admit girls under 16. Unfortunately, this increasing tendency to exclude girls under 16 from the better factories has a reflex action on the industry itself, complicating the labor problem of the better industries, by allowing the unskilled trades to ruin those who might in mature years become skilled workers.

The girls of 14 and 15 leaving school to go to work then have little choice except the unskilled industries, where they must spend from one to two years in purely monotonous or mechanical work. After one to two years' experience, they are eligible to the more skilled industries from the standpoint of age; but the study of 200 women in one of the highly skilled trades of Boston and, 109 in those of

¹ Amount not ascertained.

Worcester has revealed only 4 workers who began their career in unskilled trades.¹

The effect is, however, equally disastrous to the industry. All employers in all kinds of business complain of the scarcity of responsible, to say nothing of skilled, workers. One clothing factory was forced to send to New York this fall and import a large number of workers. Another had to close one room of its factory, with a capacity for about 40 workers, because of inability to get workers. One of the clothing firms offered the investigator \$5 for every worker she would send him. Dressmakers are closing their shops and going to work by the day or into the shops because of inability to get help. The demand for skilled workers far exceeds the supply. The opportunity for the skilled worker is great; the opportunity for the worker to acquire this skill is small.

The present method of learning the trades in the factories has proved far from satisfactory to all concerned. The new worker usually "picks up the trade" with what aid and time the forewoman or some other skilled worker can give. The majority of firms of the various industries visited agree that this is an inadequate and expensive process. The demand on the forewoman's time is continuous and the return small, since a large proportion of the workers do not reach the stage where they can give adequate return. The proprietor of the corset factory who estimated that his learners caused him an annual loss of \$1,500 has been cited. The proprietor of a shirt factory estimated that each learner meant a loss of \$50 to the firm. A shoe firm "will not bother with green girls—too expensive," while another takes only bright girls. A paper firm reports that one girl teaches another in both hand and machine work, but that this is an expensive method.

E. Summary of industrial conditions which confront young workers.—Several facts, then, are to be noted. The little girl of 14 or 16 has an opportunity to enter only unskilled work. The monotonous mechanical work which she does is destructive to rather than promotive of intelligence, responsibility, and preparation for a higher grade of work. The masses of young girls do not easily adapt themselves to this mechanical, monotonous work; drift from one place to another, thus learning or becoming proficient in no one trade. When they reach the age which makes them eligible for a higher kind of work, therefore, the masses have not developed or have lost the power to take advantage of the opportunity now opened to them. The factory industries requiring more skill have no satisfactory system of training the prospective worker for the trade. The result is that the mass of workers who begin work in the unskilled trades remain there and never get any higher.

¹ Study of dressmaking made by the research department of the Women's Educational and Industrial Union, Boston, to be published in its series on Economic Relations of Women.

F. Need of trade-training school.—One great need of the industrial world stands out prominently—a trade-training school which can take the 14 or 15 year-old girls who will not go to the regular schools and must go to work in a year or two. If this trade-training school can give her such equipment that she may be lifted over the preliminary unskilled processes in the industry and put upon work which continually trains and develops her for a higher kind of work, the great mass of unskilled, unstable workers must in time decrease.

VI. WOMEN-EMPLOYING INDUSTRIES OF WORCESTER.

With this in view, three problems come up for consideration: First, what are the women-employing industries of Worcester? Second, what are the opportunities as to numbers needed, self-development, financial compensation, and future outlook in each trade? Third, what can be done to adapt the women for the better trades and adapt the trades to the women workers so as to secure for both the best possible results? In other words, what is the need of and opportunity for trade training?

The general facts learned from the study of a single year's group of girls serve as a fairly good index to the women-employing industries of Worcester. Statistics show that approximately 1,300 women and 138 minors were employed in the mercantile establishments of Worcester during the past year; that 8,000 women and 1,000 minors, not including home workers, were employed in manufacturing in Worcester;¹ that is, five-sixths of the women and five-sixths of the minors at work are engaged in manufactures.

Four industries occupy almost 90 per cent of the women employed in manufactures. The machine-operating trades, covering the production of corsets, women's clothing, and shoes and slippers, stand foremost, with 52 per cent of the women and 65 per cent of the girls employed in these four industries. The textile industries rank second, employing 18 per cent of the women and 20 per cent of the girls. Wire and metal goods rank third, with 15 per cent of the women and 9 per cent of the girls. The metal trades draw a comparatively small number of girls from school, because of the heavier physical demands. Envelopes and paper goods rank fourth, with 13 per cent of the women and 5 per cent of the girls.

¹ Statistics from records of factory inspection. These figures must be accepted as indicative rather than statistical.

Four factory industries employing women in Worcester.¹

Industries.	Women.	Girls.
1. Machine operating	3,680	444
Corsets	1,898	398
Women's clothing	1,393	28
Boots and shoes	389	18
2. Textiles	1,281	137
3. Wire and metal goods	1,092	62
4. Envelopes and paper goods	937	39

¹ Statistics gained from records of factory inspector, together with those acquired by personal visits.

A. Unskilled industries.—The textile industry, wire and metal goods and paper goods manufactures offer comparatively small opportunity for self-development, as has already been shown, though in some cases larger opportunity for financial advancement. The majority of the processes in the textile mills are highly mechanical and offer little opportunity other than tending machines. Weavers get good pay (\$5 to \$14 per week), but this branch has been closed to women in one large factory, because of the 56-hour law. In the carpet mills a large number of hand sewers are employed, and receive \$12 to \$18 a week. In the worsted and yarn mills a small number of burlers or menders (hand sewers) receive from \$6 to \$12 a week.

The metal trades are probably the most hopeless of all trades as an industrial career for women, yet they are the third largest women-employing industry of Worcester. The superintendent of one of the large wire factories granted that "there is little future" in the trade. Beginners in this factory start with 75 cents a day, the majority getting \$1.75, with a maximum of \$2 a day.

The paper trades are more desirable, in that the physical demands are less severe, the work cleaner, and the surroundings probably more attractive. The manager of a large envelope factory, however, frankly says there is no future in the business for girls, and that only workers of a type not high enough for skilled trades should be encouraged to go into it. The average girl learns the processes in one to two months, but according to one employer requires three years to reach the maximum speed. Folding of envelopes by machine is wholly unskilled work, the girl merely feeding the paper into the machine. Folding envelopes by hand requires a certain degree of accuracy, deftness, and speed, as does also covering pasteboard boxes with glazed paper. With the piecework system, envelope makers receive from \$9 to \$15 and box makers from \$4 to \$12, according to process and product. The manufacture of fancy paper products, such as valentines, cards, etc., is pleasant and attractive

work, but offers a short working season.¹ There is opportunity for a comparatively small number of designers at \$10 to \$15, but the majority of the processes are unskilled and offer a range from \$3 to \$10 a week.

The proprietor of a large paper-goods factory says: "If a trade school could teach girls promptness alone, that would be worth something. Promptness, neatness, and a general knowledge of the industry should be taught those of not high enough type to be good material for skilled trades." This employer has struck the essential point in his appreciation of the need of a broader background and interest. The problem of how and when this broader background can be given the workers of these three factory industries is an open question. The small proportion of age and schooling certificates issued for the paper-goods factories corroborates the conclusion gained from visits to the factories, that the majority of these girls had reached the age of 16. The proprietors of the three paper-goods factories visited said they get most of their workers from the schools. If most of their workers come directly from the schools, and the majority are 16 years of age, this may account for the apparent higher grade of young girls in these factories.

The needs of the worker in these three factory industries, therefore, are somewhat different. The workers in the textile mills and metal-goods factories leave school early, and have little general or cultural education. The workers of the paper-goods factories may have, on the whole, more of the cultural education, yet the employer in the trade appreciates the need for a still wider interest and outlook. The opportunity for these workers probably lies either in part-time schools or in evening schools for the mature worker, giving a certain amount of supplementary training connected with the trade, but chiefly complementary teaching in domestic and academic subjects. Quite a large number of the girls visited in their homes asked if evening schools would be established, and expressed a desire to attend. A large number, however, would not be reached by evening schools, because of the demands on the physical strength of the girl or woman who has a 10-hour working day.

B. The skilled industries.—(1) Machine operating: But one group of trades in Worcester, the needle trades, therefore, can be said to lay claim to a high grade of skill and offer opportunity for development and advancement.

The machine-operating trades show a state of transition from the low-skilled factory industries just discussed, to the high-grade skilled trades, dressmaking and millinery, and can not be considered as requiring more than a low grade of skill. The introduction of

¹ September-December, time of maximum employment, 200. April-August, time of minimum employment, 26.

specialized machines which do only a special process, such as tucking, hemstitching, sewing on buttons, making button holes, and embroidering edges—the extreme division of labor, so that one girl does a single process from one day's end to another—and the supremacy of mechanical processes have largely eliminated the need of and the demand for high-grade skill. Practically only three skilled processes exist in the factory-made clothing trades in Worcester. Of these, the cutting is monopolized with one exception by men. Of the two remaining processes, machine operating and hand sewing, the former employs by far the larger number of women.

The degree of skill required in machine operating is largely determined by the grade of product turned out. The machine-operating trades show 5 fairly definite stages of work which require (1) mechanical speed, (2) accuracy combined with speed, (3) accuracy combined with deftness, (4) constructive ability, and (5) artistic ability.

Machine operators on canvas goods—tents and awnings—or on overalls, stitchers and tuckers in a muslin-underwear factory, must acquire mechanical speed, primarily. Such workers are little above the envelope workers in degree of skill, with this slight difference, the power-sewing machine is subject to the worker who must feed the material through the machine straight, while the folding machine of the envelope feeder is wholly independent of the worker. Yet modern invention has introduced self-feeding, self-regulating hemstitching and tucking machines so that one girl can superintend 4 machines—merely walking back and forth to see that everything is going right. A single industry, like the manufacture of corsets, for instance, offers the first four stages of work and necessitates the corresponding qualifications in the workers. A factory which produces a 69-cent or a dollar corset made of cheap materials, with little attention to lines and adaptation to form, requires a comparatively small degree of skill and can be turned out at a high speed by a comparatively low-skilled worker. A factory which, on the other hand, produces a four or five dollar corset made of expensive materials with much attention to style and lines must have skilled workers of intelligence, deftness, and accuracy. The manufacture of high-grade waists and dresses requiring a high degree of skill and artistic ability has not yet been introduced in Worcester. The individual factories and kinds of products are therefore important in determining the desirability and possibilities of the trade.

The different processes requiring different degrees of skill, responsibility, and intelligence are open to the various kinds of workers best adapted to each; and the degree of skill, combined with the speed of the worker, determines and explains the wide range of pay discovered in the machine-operating trades.

An average girl can learn to run a power machine in a few weeks but needs from 6 to 12 months to become a skilled worker and secure a wage of \$6. The weekly wage varies a good deal, according to the individual speed and skill, and the supply of work, which fluctuates with the different seasons. Machine operators in the corset factories range from \$6 to \$15. This range expresses largely a difference in speed and skill.

Summary of women and girl workers and of wages in the three largest corset factories.

Occupations.	Employees.		Weekly wages. ¹		
	Women.	Girls.	Min.	Max.	Maj.
Machine operators.....	1,090	320	\$6	\$15	\$9
Hand sewers.....	427	35	5	12	9
Pressers.....	78	.....	8	11	9
Examiners.....	26	.....	6	10	7
Boxers.....	15	.....	8	10	6

¹ Some machine-operating wages go as low as \$1.50 during dull time of stock taking.

The \$6 girl does the simple processes and works on the cheaper product. The \$15 girl does the most skilled processes and also handles the best type of product. One firm reported that the machine operators sometimes drop as low as \$1.50 a week during dull time of stock taking, but it is difficult to get statistics on the dull season without a canvas of the individual workers, because of its variation.¹ The employer is usually reluctant to say or does not exactly know what is the seasonal fluctuation, but three factories report that the months of November, December, and January are the times of minimum employment.

Machine operators on tents and awnings and heavier, coarser products require the lowest degree of skill and receive a correspondingly low range of pay, from \$5.25 to \$8.25. The range of wage here expresses primarily the range in speed. The machine operators of the 6 underwear factories and the 2 women's clothing factories must possess a wider range of skill and showed a usual range of \$5 to \$14, with the majority probably receiving from \$7 to \$9, though one girl in an underwear factory was reported to be receiving a wage of \$18.

¹ The study of individual girls and of pay rolls in Boston firms is now being made by the research department of the Women's Educational and Industrial Union of Boston, and should contribute much to the correction of the wage irregularity. See also Goodman, Pearl, and Ueland, *Ela*, *The Shirtwaist Trade*. *Journal of Political Economy*, December, 1910.

Six underwear firms—Illustrating kinds of work and wages of women.

Occupations.	Women.	Weekly wages.			Firms reporting.
		Min.	Max.	Maj.	
Machine operating.....	348	\$5	\$18	\$9	6
Ribbon girls.....	15	3	4	4	3
Pressers.....	22	.....	.....	.....	2
Examiners.....	8	.....	.....	4	2
Finishers.....	24	6	7	.....	1
Cleaners.....	24	6	7	.....	1
Trimming preparers.....	10	6	7	.....	1
Lace girls.....	5	.....	.....	6	1
Outside workers.....	.....	.....	.....	.....	1

Women's clothing factory—Product: Shirtwaists and dresses.

Occupations.	Women.	Girls.	Weekly wages.		
			Min.	Max.	Maj.
Machine operators.....	160	4	\$6	\$15	\$8-\$10
Finishers.....	12	3-4	.....	.....	6- 8
Fitters.....	4	.....	.....	.....	7- 8
Pressers.....	8	.....	6	.....	.....
Folders.....	2	.....	6	9	.....

A typical shoe factory.

Occupations.	Employees.		Weekly wages.		
	Women.	Girls.	Min.	Max.	Maj.
Vampers.....	12	.....	\$16	\$25	\$20
Eyelet workers.....	2	.....	13	.....	18
Back stayers.....	4	.....	12	18	15
Tip stitchers.....	2	.....	13	15	.....
Top stitchers.....	6	.....	12	20	15
Lining makers.....	6	.....	8	12	10
Sorters.....	.....	8	4	5	.....
Packers.....	.....	12	3	4	.....
Skivers.....	2	.....	8	12	9

Machine operating in a shoe factory requires a high degree of skill, and the wage is proportionately higher. The lining makers, who earn from \$8 to \$12, and work on heavy cloth, are the lowest paid machine operators in the shoe trade. Next beyond them in point of skill and earning capacity are the operatives who do the simpler parts of the stitching, back staying, etc. The most highly skilled workers are the vampers, who stitch together the vamps and the uppers. The difficulty in this process comes in being able to follow the curve of the vamp, and to join together the vamp and the upper part of the shoe in such a way as not to destroy the fit of the shoe. The range of wage in this trade then expresses a range both in skill and speed as in the better corset factories.

A forewoman in one factory said that a knowledge of machine operating on cloth would be of value to a girl in adapting herself to work on leather. The difference rests primarily in the strength required to run the heavier machine, and in the ability to handle the heavier material, as well as in the knowledge of the special machines in use in shoe factories.

The study of machine operating, therefore, shows that Worcester contains a large number of factories demanding ordinary machine stitchers at a maximum wage of \$7 to \$8, with a certain amount of seasonal fluctuation, though probably not longer than what might be called vacations. Also, without doubt, there are a fair number of opportunities for the better class of work, such as that found in factories producing the best grade of corset, and ranging from \$12 to \$15, with a smaller amount of slack time. Finally, opportunity exists for a large number in factories where the better grade of underwear is manufactured. Here the type of work is superior, or, at any rate, may lead toward the manufacture of finer goods, with a wage ranging from \$5 to \$14, and in a few cases as high as \$18, though the majority probably receive not more than \$8. The shoe factories of Spencer and Webster and the straw-hat factories of Upton offer opportunity for higher grade work and financial advancement. Although at present there is little or no interchange of work and worker between Worcester and these cities, these opportunities for better work and better pay may in time be seized by the people of Worcester, who have been trained in the machine-operating trades.

It is into these factories of Worcester that the larger number of young girls must go, and a certain amount of training for this trade will provide the means of entrance and advancement. It must be noted, however, that the opportunity in the trade is not such as to attract very large numbers of girls of great ability, as the room at the top is limited. It is, in general, the girl with less ability or the girl with the pressing need of economic independence who should be trained for this trade. The wage is probably as good as could be secured in other types of work accessible, and there is an opportunity for a high wage for the intelligent worker, while the type of work is superior to that in the other great industries employing women in Worcester. From the point of view of the trade and from the point of view of the girl, trade-school training may well be given for the machine-operating industry; because, first, it is the largest women-employing industry in Worcester; second, the demand far exceeds the supply of skilled workers; and, third, there are some branches of the work requiring a certain degree of skill and good financial remuneration. There are also neighboring towns where the demand for the most skillful operators in shoemaking and straw-hat making is very great.

No satisfactory or adequate system of training for the more skilled processes exists in any of the factories, so that the need of some method of systematic training is evident, and the advantage of profiting by the opportunity offered would doubtless soon become apparent. A large amount of training in the specific processes of the trade, however, does not seem necessary and, with the wage prospect as it now exists, not desirable. Four facts seem to prove that the outlook is encouraging for a favorable reception and for patronage of a trade-school course: First, the better factories in these trades do not receive girls under 16 for machine operating; second, employers show great interest in and approval of such a project; third, the economic condition of the family indicates that parents in Worcester could send girls to such a school; fourth, parents and children are interested in the suggestion. Possibly it would be necessary at first to begin with the shorter courses of 3, 6, or 9 months with the hope that as the school proved its effectiveness there might be added to the purely technical course, training in the needle trades and other subjects, which would make the girl more intelligent, more capable of advancement, and develop that larger power for economic independence which comes through right living and right spending.

The problem does not seem to be one of ability on the part of the family to give the child this training, but ability on the part of the school to persuade the child and parent that such training will in the long run be desirable. The fact must be faced that such courses are preparing the girl for the medium opportunity both as to the wage and as to development, with but comparatively small outlook toward the more advanced type of work and higher wage. For this reason it may seem desirable that different units of courses should be established as time goes on, starting with the shorter courses. Also it may become necessary to consider an effort to introduce part-time courses or regular courses in the dull season, if it is possible to discover that the less-skilled worker is dropped off earlier and would therefore have a sufficiently long dull season to make it worth while. Finally, it may prove wise to consider the establishment of evening continuation courses for the more mature workers.

(2) *Dressmaking*: But two industries requiring and offering opportunity for high-grade skill—dressmaking and millinery—are found in Worcester. The opportunity in this field is restricted here in two ways: First, in the smaller field and demand, and, secondly, in the high degree of skill, natural ability, and taste requisite for success. At present there are about a dozen dressmakers in Worcester who employ over 10 girls. Three of these employ a force of 20 to 30, and about 9 employ from 10 to 17 girls. Only about 18 of the 398 dressmakers in the city directory could be classed as employers in the true sense. A larger number employ two to three workers at

certain times of the year, but the majority, nine-tenths at least, are home or day workers, which illustrates the opportunity open to this type of worker.

Although Worcester is a social and economic entity, trades which are dependent on local custom and patronage suffer from proximity to Boston. Therefore, while the size and wealth of Worcester might seem to indicate large opportunities in dressmaking, the field is greatly decreased by the fact that the wealthier people of Worcester go to Boston to have their best clothes made or to get clothes ready-made. These people say they can not get as good a product in Worcester as they desire. The Worcester dressmaker says she could give as good a product as the Boston dressmaker if she could get the same price for her product.

However that may be, the dressmaking trade and the dressmaker of Worcester are greatly handicapped by lack of responsible and skilled workers. Some say they refuse work rather than take on new and unskilled workers to meet the increased demand. Others close shop to accept the better-paid openings in the large establishments or to go out by the day because of the dearth of skilled labor. Advertisements for well-paid positions run for months for lack of skilled workers to fill them. Several causes explain the great dearth of workers in this most desirable trade. First, only two or three of the smaller dressmakers visited will take apprentices, so that the trade is practically inaccessible to young workers. The only means of entrance for the young girl is probably through the errand-girl stage. The errand girl picks up the trade at spare moments, but this is a slow and haphazard method. Moreover, there are openings for only about a dozen errand girls in Worcester. Second, the dressmaking trade has more of a professional character and necessitates a longer period for training and growth than do the factory industries. Finally, a higher degree of natural ability and artistic taste is being increasingly required, which explains to some extent the disappearance of the old apprenticeship system in this trade and the lack of workers able to qualify for the trade. Practically every part of this trade has become such a skilled process and material is so expensive that there is little opportunity or need for unskilled workers.

How, under these circumstances are young girls to learn this most desirable trade? Almost all the larger employers prefer young workers who bring freshness, deftness, and originality, but have not the time nor opportunity to teach young girls in the shop. Almost all are desperate for more workers, but where can they get them? The employer has no time to train young girls, and practically only one very limited avenue to the trade now exists, the entrance as errand girl, a pseudo-apprenticeship, as a French student has termed it. This method is, however, unsatisfactory to employer and employee; to employer because it can not meet the demand for numbers

and for young workers equipped with the fundamental principles and processes of the trade; to employees, because it can not be adequate or systematic, and necessitates a long preparatory period of low pay and seemingly small return.

The dressmaking trade, therefore, shows the greatest need of some kind of a trade school where the girls can obtain the fundamental principles of the trade. Some workers with one year's training will be in demand in the trade. A larger number with two years' or more preparation will be required, for only large shops employing specialized workers need the smaller and less experienced girls in the workroom.

The outlook as to numbers and large pay is not yet very great in Worcester, due to the fact that the dressmaking trade there has not reached the higher stages of economic development. In Boston, for instance, seven distinct stages of economic transition are apparent in the dressmaking trade: (1) The day worker who goes out by the day at \$1.50 to \$4 a day; (2) the private dressmaker with a force ranging from 1 to 7 girls who are general workers of a medium degree of skill and ability receiving from \$5 to \$8 a week; (3) the small custom dressmaker with a force of 6 to 10 girls, of whom 1 usually has the title of head girl. The general workers receive from \$5 to \$8, as in the preceding stage, and the head girl from \$9 to \$10. (4) The larger custom dressmaker next appears with a force of 15 to 30 girls, among whom are a head waist girl, receiving from \$12 to \$15, head skirt girl with \$9 to \$12 and the usual subordinate workers characteristic of the preceding stages. (5) In the fifth stage each division of the actual production is isolated, with a head girl in charge of each; the head waist girl, head skirt girl, head sleeve girl, and head lining girl, each with her subordinates on a descending scale as seen in the preceding stages. Shops of this type have a force of workers ranging from 20 to 60 girls, who show a wide range of skill, responsibility, and corresponding compensation. (6) The sixth stage may be called the stage of specialization, where the head of each division of the work is a specialist. The head dressmaker with a weekly salary of \$25 to \$35, cutters and fitters appear in addition to the specialists in the actual production seen in the preceding stage. (7) The shop of the seventh stage shows one new and additional feature, the combination of sales and production departments. The shop of this stage may assume two forms, the commercial type in which a sales department of ready-to-wear gowns is added to the department of custom production, and the manufacturing type in which the so-called custom production for both local and more general, but still a so-called retail market is carried on. Such establishments have a head dressmaker with a weekly wage ranging from \$35 to \$50, and, in some instances, higher.¹

¹ These statements are drawn from an extensive study of the dressmaking trade which has been made by the research department of the Women's Educational and Industrial Union, Boston.

The first five of these types of the dressmaking shop exists in Worcester. Since there is only a comparatively small number of establishments which employ a large force, there is opportunity for only a few highly paid workers, as the employer herself in most cases does most of the skilled work. One shop, however, has a waist cutter and fitter who receives \$25 a week, another shop a head waist girl at \$20 a week. Three reported head waist, coat, and skirt girls between \$12 and \$18. The remaining report \$8 to \$10 for waist and skirt makers and \$3 to \$7 for helpers and finishers. Six or seven smaller dress-makers employ 4 to 6 girls at \$6 to \$8. Day workers receive from \$1 to \$3.50 a day.

The demand for hand sewing in the factory industries is rapidly decreasing with the continual increase of perfected and specialized machinery. Corset factories turning out a high-grade product, however, employ hand sewers to sew lace on the more expensive product. One such corset factory alone employs 400 hand sewers at about \$9 a week. Machines have wholly displaced handwork in the manufacture of muslin underwear, wash waists, and dresses. Heavier clothing, such as suits, coats, and skirts, still employ hand finishers at a weekly wage ranging from \$6 to \$15. The field is, however, quite small in this branch of the clothing trade of Worcester.

The higher type of girl, the broader education, and the greater stability of workers in the dressmaking trade stand out in marked contrast to the shifting force of the unskilled trades.¹ The larger dress-makers say they seldom take on a new worker, holding their regular force year after year. Some of their workers have been with them 10, 14, and even 18 years. Reports from 54 workers in the trade showed that only 8 had had any previous occupation, and only 3 had worked in an unskilled trade. The workers, then, in dressmaking have seldom approached this high-grade skilled trade through the unskilled trades, but the custom in Worcester seems to have been to go directly from the schools into the trade. Forty per cent of the 54 workers studied were high-school girls and 30 per cent from the ninth grade.

The opportunity for trained workers in dressmaking in Worcester, therefore, seems to be for a limited number of young assistants, a fair number of older and abler assistants, and a great number of independent or day workers, with a fair or good wage and a good range in the type of work. This situation distinctly restricts the type of girl who can be advised or expected to go into the trade. It seems to be only the efficient girl, who in the long run may get somewhere near the top, for there is not room for a large number of intermediate workers except in the corset factory.

¹ One employer of 12 girls has not taken on a new girl for 5 or 6 years. Some have been with her 14 years. An employer of 30 girls has only 1 new girl this year.

The great question is, How can the girl get sufficient training and experience to enter the trade? Doubtless she must be older, perhaps 16 or 17, and must have shown some ability to sew, else it will be useless for her to endeavor to enter the trade. This, therefore, means that the girl must not have any pressing or immediate necessity for economic independence and that she must look forward to a moderate income for some time. Although the length of working season in the trade in Worcester would doubtless give as large an immediate income as some of the factory industries, it would not be proportionate to the length of time she may have given to preparation.

The largest trade-training problem is therefore the one connected with that trade which offers the greatest opportunity. There is, without doubt, a demand for a small number of short-course trained girls, 20 perhaps, at present, each year, but there is a fair outlook that with the growth of the industry those types of shops which require young workers might develop, and that the great dearth of workers would result in the utilization of a larger number of well-trained beginners. On the whole, the situation seems to demand longer courses in which the actual trade or technical training shall be much extended, giving to the girl a two, three, or four year course. Such a course, however, would necessitate from the beginning a different plan of work from that offered in the shorter course. The longer course must get the girl somehow into the field. There are apparently certain stages at which she could enter the trade: (1) As a little more mature assistant in a dressmaking shop; (2) as a seamstress; or (3) as assistant to day workers in the home, thus gradually preparing herself to become the day worker of the simple type. As the schools develop, doubtless it will be possible and desirable to establish short dull-season courses, or perhaps short evening continuation courses for the more mature workers, in which instruction shall be given in some particular phase of the trade, such as drafting, waist-draping, or designing.

(3) *Millinery*: To a great number of girls, millinery is the most attractive of all the trades, offering, as it does, unlimited opportunity for the exercise of creative ability. Unlike dressmaking, millinery still retains a system of apprenticeship by which young girls can learn the trade. This trade, at least in all but the most exclusive shops, has two fairly well-marked divisions, one requiring deftness and one artistic powers; the one a trade, the other an art. The less skilled division of work, ordinarily known as the making of hats, offers opportunity for a fairly large number of young girls who can profitably be put upon the simpler kinds of work. The dressmaking trade does not have such clearly defined divisions, so that in that trade it is difficult for a wholly unskilled girl to do any part which does not merge into the skilled processes.

The young apprentice in millinery who serves for a year without pay is put upon such simple parts of the hat as making bands and the simpler frames, putting in linings, and wiring ribbons, from which she may progress into the somewhat more complicated work of the "maker." It is in this process that she may be tried out, and the siftings result in the retention of the more able girl who may then become a maker with the power to earn a fair wage with perhaps a longer season than the trimmer. It is from this group and through this educational process that the girl with the artistic ability—the prospective trimmer—is discovered. She must be the woman of real ability and knack. It is not to be supposed that the more expert or even the less skilled maker can succeed unless she has a certain degree of millinery taste, but it is only the girl with the exceptional power who can become the trimmer.

The trade therefore must be looked upon as being almost two distinct trades—the higher being the development through the lower—and each requiring certain similar yet certain peculiar ability for success. However, into the lower trade may go many girls with moderate ability who can make a fair wage in a pleasant trade. Into the higher trade can only be admitted those with the exceptional artistic ability. As a whole, the opportunity in millinery is limited as to wage for the large numbers who may enter. It is limited as to numbers in the highly paid work.

Unlike the dressmaking trade, millinery suffers very little from outside competition in Worcester. Tradespeople say that only a few of the wealthier people buy their hats in Boston, and that the number of customers lost to each milliner in this way is so small as to be almost negligible. There are at present some 50 or 60 milliners listed in the Worcester directory, but probably not more than 20 of these employ over 1 or 2 women. Sixteen of the large establishments were visited, including the millinery shops of four department stores. These establishments report places for 52 learners a year, under the present system, and their total number of employees is about 200. Here, as in dressmaking, the stability of the workers is a marked feature of the trade. Milliners frequently reported that they had retained their most skilled employees 5, 10, or 15 years. Most of the milliners prefer to take girls over 16 years of age, and only 3 establishments were found employing girls between 14 and 16. There are opportunities in plenty for the older girl, but very few for the 14 and 16 year old girl. As the milliners say, "What can you expect of girls of 14? They are only children."

The number of milliners desiring girls over 18 years of age was 2; at 16, 4; at 15, 6; at 14, 2; indifferent as to age of workers, 2.

The number of firms employing no girls 14 to 16 years of age was 2; 1 girl of that age, 0; 2 girls, 2; 3 girls, 1; not reporting, 1.

Types of millinery shops in Worcester, illustrating kinds of workers and range of wage.

Type of shop.	Head trimmers.		Trimmers.				Makers.				Learners.	
	Number.	Wages.	Number.	Wages.			Number.	Wages.			Number.	Wages.
		Max.		Min.	Max.	Maj.		Min.	Max.	Maj.		Maj.
Millinery department of department store.....	1	\$25	3	\$12	\$20	\$15-\$18	8	\$4	\$12	\$6-\$10	2	0
Large millinery store.....	1	45	10	10	45	15-20	17	3	10	6-10	3	0
High-grade custom shop.....	1	25	1	.....	18	.....	10	3	10	10	1 ¹ 1	\$2.50
Small custom shop.....	(*)	(*)	(*)	(*)	(*)	(*)	3	6	8	6	.....	.....

¹ Apprentice.

² Stock girl.

³ Owner does most of trimming.

Millinery, like dressmaking, shows various stages of economic evolution, and a resultant variety of types of shops. Four fairly definite types appear in Worcester: (1) The small custom shop where the employer does most of the trimming and hires several makers at \$6 or \$8 a week; (2) the high-grade custom shop, employing a head trimmer at \$25 a week, a trimmer at \$18, some 10 or so makers ranging from \$3 to \$10, and an apprentice and stock girl; (3) the large millinery store; and (4) the millinery department of a department store, with correspondingly higher pay for the trimmers in accordance with degree of skill or responsibility required.

The wages therefore show a wide range for the trade as a whole, but a fairly common wage in all shops for similar work. The division requiring creative artistic ability shows a wider range, from \$10 to \$45, as the tables indicate, according to the amount of responsibility assumed and the degree of artistic and creative ability possessed.

Two features of millinery seem to make trade-school work possible for the girl who wishes to enter or who has entered the trade. First, it is more highly seasonal than any other skilled industry for women. Second, it is characterized by an apprenticeship system, which means that the girl who goes into the trade gives her services without remuneration for two seasons, averaging about 3 months each. Unless the girl can find some other occupation for her dull seasons, which cover about 3 months in winter and 3 in summer, she must work for a year without pay. The second year she is started on a small wage, usually not more than \$3 a week, and her pay advances by degrees as her skill increases, but, as one employer put it, she does not become a "real milliner" for 2 years. Now it is a self-evident fact that both the seasonal aspect of the trade and the system of apprenticeship which prevails with most milliners tend to exclude the girl who by reason of economic pressure is obliged to get to work as soon as the law allows, and to attract the girl who can afford to

wait for the higher wage which comes with experience and a high degree of skill. Yet all the milliners visited reported a great number of girls from whom to choose. Reports from 51 workers in the millinery trade showed that 40 per cent were high-school girls and 50 per cent from the ninth grade, while none had ever worked in unskilled industries. So that in dealing with the millinery situation, the question of the child's economic ability to avail herself of trade training need not enter into the discussion. It is safe to assume that the child who can afford to go into millinery can afford to go to a trade school.

The question which does confront us, the one which some milliners ask, is whether apprenticeship in a millinery workroom does not give the child a better equipment than the training which a trade school could offer? A survey of the situation leads to the conclusion that the present system of apprenticeship leaves much to be desired from the point of view of the prospective learner. Even with the minimum age limit at 16, as is the case in most millinery shops, there seems to be maladjustment and waste. Only 3 of the milliners interviewed were able to say that most of their apprentices "made good," and 1 of these 3 would not take any learners who were not experienced sewers. Two milliners said they used their apprentices each year with no thought of retaining them when they reached the point where they could demand pay. What, then, can the trade school give these girls which the shops can not give them? A training under teachers who can take time enough to give each girl a thorough try out, their aim being to develop individual efficiency, even though the process may be long and unremunerative.

The labor situation in the millinery trade in Worcester, therefore, is much less serious than in the dressmaking trade. There is an annual demand for about 50 young girls now, showing opportunity for larger numbers than in the dressmaking trade. The opportunity is small for the girl of not much skill, but larger for the fairly skilled worker—that is, for the expert maker—and fair for the skilled trimmer. The pay for the expert maker is good and for the skilled trimmer excellent. But it must be noted that the season in the millinery trade is short.

Girls must be fairly efficient to enter and to continue in the trade. Its workers are necessarily a selected few, for two reasons. First, they must have natural ability and millinery taste. Moreover, they must acquire ability to sew and deftness in handling materials which can be developed with training. One milliner says that one of the requisites of millinery workers in a town like Worcester is the ability to make things over; to renovate, rearrange, freshen up old materials, requiring a large amount of ingenuity. Second, the girl who desires to go into millinery must be efficient, but one who need not

acquire immediate economic independence, because the trade partakes of the nature of a profession. She must be the girl with small necessity for economic independence or a larger wage for sometime to come. The more efficient girl without economic independence may be able to go into the trade, and by a brave struggle succeed, by filling in her dull seasons with anything which she may find to do; but for the less efficient it would be questionable.

A possible solution for the problem of a secondary trade appears in the valentine and fancy paper-goods factory of Worcester. The proprietor of the factory thought a large number of his workers—he employs 200 in the busy season—came from the millinery shops. Unfortunately, at present the busy seasons overlap somewhat. The time of maximum employment in the valentine factory is from September to December, although the work continues through January and February. The busy season for millinery is September and October, and for some workers, November. Since the valentines, cards, etc., are made for the next year's sale, the question arises if it might not be possible to shift the season somewhat in the valentine factory. Millinery workers might be shifted during their dull season into such a factory, and if they proved their superior ability this change would probably come about of itself. The summer season usually brings opportunities in the hotels at summer resorts for girls who are economically dependent. If some such adjustments with secondary occupations could be made, the economically dependent girl who may chance to have real ability and efficiency along lines of millinery art may find great opportunity to enter and develop her art in the trade.

What significance, then, has this situation for the trade school? There would be, without doubt, a demand on the part of a fair number for a short course, which might be offered to the younger girls in the trade school. There certainly seems to be opportunity for advanced and medium dull-season courses or evening courses, since there is a dull season of 3 months in the winter and 3 months in the summer, and since the reports of milliners seem to show a large number of girls not immediately economically independent. Finally, this economic condition might seem to indicate a moderate demand for longer courses of 2 years.

VII. SUMMARY.

Worcester is a city of factory industries which employ more than 8,000 women. Four industries—machine operating, textiles, wire and metal goods, and paper goods—receive 90 per cent of these women.

I. THE EXODUS OF YOUNG GIRLS FROM SCHOOLS.

These industries offer openings for a large number of young girls. In 1910, 700 employment certificates were issued to 14 and 15 year old girls leaving school to go to work, an increase of 40 per cent over 1905. Sixty per cent of these girls were 14 years of age, and more than one-half had not reached the ninth grade in school. Of 214 homes visited, the majority on a conservative estimate showed that economic pressure was not the impelling force of the large outgo of young girls. Yet 25 per cent of these girls had left before reaching the seventh grade, and 71 per cent were from Swedish, Irish, and American families. Such facts seem to indicate the need of additional lines of training not yet provided by the public schools which will meet the demands of the "motor-minded" girls who are not forced by economic pressure to go to work as soon as the law allows.

II. INDUSTRIES WHICH YOUNG GIRLS ENTER.

Two great industries draw more than half these girls just out of school. The machine-operating trades drew 38 per cent, the corset factories receiving the larger proportion—28 per cent, and the textile mills 18 per cent of last year's outgo. The other half are employed in mercantile establishments, metal trade and paper goods, various forms of clothing manufactures, and scattering industries which can not be considered from the industry point of view.

III. KINDS OF WORK OPEN TO YOUNG GIRLS.

The little girl of 14 or 16 has opportunity to enter only unskilled work, or "blind-alley" occupations. Even in the machine-operating trades, where there might seem to be opportunity for rise and financial advance, the opportunity is apparent rather than real; for here, too, young girls must begin on the unskilled, monotonous, and mechanical work. A large proportion of the girls either (1) lose the capacity for or fail to develop the intelligence and responsibility necessary for a higher grade of work; (2) become impatient with the monotony and discouraged with the outlook; or (3) are laid off in slack season and drop out of the trade. The masses of the young girls, therefore, not easily adapting themselves to the preliminary processes, drift from one place to another, thus learning or becoming proficient in no one trade. Hence arises the army of drifters and unskilled laborers. When they reach the age which makes them eligible for the better trades, such as high-class machine operating, dressmaking, and millinery, they have not the capacity for taking advantage of the better opportunities. The more skilled industries have no satisfactory system of training the prospective worker for the trade, so that the mass of workers who begin work in the unskilled trades remain there and have no way of bettering their condition.

IV. WOMEN-EMPLOYING INDUSTRIES.

A. The unskilled industries.—Of the four factory women-employing industries, the unskilled trades—textiles, metals, and paper goods—employ 48 per cent of the women workers. These trades in themselves offer little outlook either for self-development or for social advancement. The workers in the trade are, therefore, all the more in need of opportunity for supplementary trade development. Nevertheless, there would probably be small opportunity for these workers to profit by such courses offered in a technical or trade school except in evening schools for the more mature worker. A large number even then could not be reached because of the demands of the ten-hour working day on the physical strength of the woman worker. In the textile trades alone is found a sufficiently large number of girls to make part time work feasible. These are the workers who leave school at an early age. Therefore, it is through the unskilled industries employing children that these workers must be reached during the 14 to 16 year old period.

B. The skilled industries—(1) Machine operating: Machine operating, the remaining factory industry, employing 52 per cent of the women factory workers, presents a stage of transition from the unskilled to the skilled trades. Certain phases of machine operating, such as stitching on canvas goods and overalls, hemstitching, and tucking ruffles in muslin underwear, and the simpler and more mechanical processes in the corset factories, can not be called more than low-grade skilled work and hence command a wage ranging from \$5 to \$10. On the other hand, making the finer, more expensive corset, and certain processes in the better grade lingerie require a fair degree of skill, and good workers can command from \$10 to \$15. Machine operating in the shoe factory also requires a high degree of skill, the less skilled operators receiving from \$8 to \$12, while the highly skilled workers range from \$10 to \$25. Since, however, there are no factories in Worcester which produce a high grade of women's clothing, there is not the opportunity for highly skilled workers on the lighter and more agreeable materials that is open to machine operators in New York or Boston. Increased skill on the part of the workers might perhaps be instrumental in inducing the manufacturers of Worcester to expand their business by the introduction of a finer grade product. The introduction of a trade school might, therefore, augur the development of a more desirable product, hence broader opportunity for highly skilled workers.

The study of machine operating, therefore, shows that there is a large number of factories demanding ordinary machine stitchers at a usual wage of \$7 or \$8; a fair opportunity for a better class work requiring a higher degree of skill, as in the better corset factory, where a wage of \$12 to \$15 may be secured; and finally, opportunity

for a large number of operators in the manufacture of lingerie, with a range of from \$5 to \$15 but a usual wage of \$8.

It must be remembered, however, that this trade is not one to attract the girl of great ability, but rather the girl of moderate ability or the girl in pressing need of economic independence.

(2) *Dressmaking*.—But two industries in Worcester offer opportunity for a high grade of skill, dressmaking and millinery. The dressmaking field is restricted from the standpoint of the prospective worker in two ways; first, because of the small number of large shops, and, second, because of the comparatively few highly paid positions, a natural consequence of the small shop. This may, however, be due partly to the dearth of skilled workers in the trade. This dearth of workers has come (1) because of the disappearance of the apprenticeship system as a means of access to the trade, (2) because the dressmaking trade has more of a professional character and necessitates a longer period for training and development, and (3) because of the increasingly higher degree of natural ability and artistic taste required by the trade.

The dressmaking trade is therefore primarily a trade for the girl of natural and artistic taste and the girl without the necessity of immediate economic independence. There are openings for only about 20 young workers, with a year's training, to enter the trade each year at present. The outlook as to numbers and large pay is not, under the existing system, very great, though the availability of trained workers might enlarge the opportunity both for larger numbers and for higher pay. Plain sewers in custom shops or corset factories receive from \$6 to \$10, a few head waist and sleeve girls range from \$12 to \$18, and two head waist girls receive \$20 and \$25, respectively. The beginnings only of specialized work and workers can be seen at present. The large opportunity is distinctly that of the day worker at from \$1 to \$3.50 per day, and the independent worker, whose wage possibilities can not be discovered. This requires, however, larger experience than is apparently now available through shops.

(3) *Millinery*.—Millinery, unlike dressmaking, still retains a system of apprenticeship by which young girls can learn the trade. The labor situation, therefore, is less serious than in the dressmaking trade. Millinery, like dressmaking, is primarily a trade for the girl of natural and artistic ability, and even more than dressmaking a trade for the girl without the necessity of immediate economic independence, because of the short seasons. In spite of this fact the millinery trade can choose from many aspirants to the trade.

The shops of Worcester offer opportunity for about 50 new workers annually under the present system and about 200 altogether. The trade has two fairly definite divisions. One, requiring deftness and some millinery taste, employs the majority of workers, called "mak-

ers," who range from \$3 to \$10. The other, requiring a high degree of artistic sense and skill, offers opportunity for a smaller number, but at a higher wage. The ordinary trimmers range from \$12 to \$20, though two were discovered at \$25, and one in charge of a large force at \$45.

V. CONCLUSION.

The industries in which women are and can be employed in large numbers may be divided into three groups:

1. These are industries in which the processes are so mechanical that but little training is required for their operation, such as the textile mills, the paper industries, and the metal trades. In the paper and metal industries comparatively few young girls are employed. Therefore, their training must have been reached either by remaining in school until they were 16 or 17, or while they were engaged in some of the child-employing industries. For such trades, consequently, the industrial training must either be offered in connection with the regular school work, or in connection with the child-employing industries, as part-time (continuation) instruction or as evening work for the older girl. In the textile industries, however, girls are being employed. Here, also, is the problem of all our great textile centers. Since the industry itself has but little promise for the woman, it would seem that the girls here employed should be given some part-time (continuation) instruction, which would develop greater intelligence in their industry and at the same time a knowledge of those trade processes which would enable them to contribute to their economic welfare in the home, such as the use of the needle and the knowledge of domestic work. This type of evening courses for mature workers is doubtless that which should be given to those who are employed in the other trades (metal and paper trades). Similarly, the mercantile establishments attract 163 girls and afford one of the chief avenues through which girls who will enter other industries later may be reached. If they can not be drawn away for trade courses, they should be taught, as would the girls in the textile industry, through part-time instruction.

2. The second group of industries contains those in which the processes require a larger or smaller amount of skill according to the type of work being done, and for which there is a possibility of fundamental training which shall not only contribute greater intelligence in the less skilled part of the processes, but shall afford a power to advance to the more highly skilled work; such an industry is the machine-operating industry. The training for this industry must always be considered as looking toward a probable medium wage as great as in any of the other industries and toward work far more desirable in character, but at the same time offering a possibility for the more intelligent to attain a wage suitable for highly skilled work.

There are in this industry large numbers of children, as has been shown. The majority of these children do not pass up into the advanced work and should be drawn away from the industry for a shorter or longer course, as seems possible, so that when they do enter these unskilled parts of the trade their knowledge and their intelligence will afford them opportunity for continuous advancement. Or to these children should be given part-time instruction which would fit them for the skilled processes, and enable them to pass on to the higher type of machine operating.

This is the great industry for women in Worcester in which there is a possibility for training and for the development of skill. It is, therefore, upon this industry that training should be concentrated, giving as large an opportunity as the children will accept for shorter or longer preparation, in the technique of machine operating, but supplementing this course with training in the needle trade and in domestic economy. It seems probable that any plan for training should also contemplate three features as a later development. Part-time training might be anticipated for the younger girls who can not be prevailed upon to give full time for even a short period; specialized operating for those who have been able to take only a short period of training; and evening work on special machines for the ambitious young woman who is now in the industry.

3. The group of industries in which there is the opportunity for the most highly skilled work and therefore for the highest industrial opportunity and wage, dressmaking and millinery, is found to a limited extent in Worcester.

In dressmaking, the outlook is distinctly for the mature and independent worker. But the field is extremely limited, and the means by which the young worker, even with a certain amount of training, can secure experience or training are lacking. Both of those conditions are due to the small number and small size of the specialized shops. Both offer special problems for solution in connection with trade training, and must affect the kind and length of courses given. Only a small number, perhaps not to exceed 20, should therefore be given a short or one year course of training, since opportunity to enter the trade at the bottom and work up is at present so limited. Similarly, longer courses, two, three, or four years, in which the more advanced principles are taught, seem essential. Dull-season courses for the girl with a shorter preparation, or evening courses teaching certain definite parts of the trade to the older girl with a professional attitude, would probably necessarily follow in the development of the training. To this work, therefore, would be directed the girl with that type of ability which makes for success in the trade, and only the girl without pressure for immediate self support, or with force of char-

acter sufficient to overcome the difficulties of a long and unpaid or low-paid apprenticeship period.

Millinery is also a highly skilled trade with limited opportunities in Worcester, as it now exists. Consisting of small shops with a few helpers, it doubtless affords better opportunities proportionately than dressmaking, with the exception that the seasons are very short. But the call is chiefly for the skilled maker and the trimmer. The girls who now enter are usually more mature and less self dependent, but the apprenticeship training is apparently unsatisfactory. One or two year courses therefore seem desirable, and a scheme for dull-season courses would probably be distinctly popular.

4. A trade school for girls in Worcester should certainly emphasize the courses in machine operating and part-time instruction. Here is a field for constructive work and distinct initiative. The city must face the problems of all large industrial centers, but it differs from Boston or New York in that it does not have the large demand for the highest type of feminized industries. On the other hand, it differs, probably, from the textile centers in that it has a very large and rapidly growing industry which demands the skill gained in the factory. In this respect it will therefore doubtless teach such centers as parts of Boston, the shoe centers of the State, and similar industrial towns.

The trade school can not properly duplicate the Boston trade school. It will contain the same trades, but the emphasis and proportion must be different. The Boston trade school did and should accentuate the dressmaking and the millinery as the best fields for girls with certain aptitudes, and as unrestricted in types of development. The Worcester trade school must offer these trades with guarded care as to numbers, types of girls, and types of opportunities. The Boston trade school offered machine operating, but it has been properly an outgrowth of experience and dependent on the increase in size of the school. The Worcester trade school should attack this trade as its most important and most immediate problem.

These conclusions suggest, therefore, the establishment of a trade school with a short course in machine operating. Instruction should be given to a fairly large group at once in order to demonstrate its efficiency. It may prove necessary to secure part-time cooperation with some machine-operating industry as an entering wedge, or to consider such a scheme as feasible for the immediate future. It should look forward to rapid development in the variety of specialized machines; to rapid increase in the number to whom instruction could be given; and in the length of course which shall be offered, either increasing the unit of time or introducing larger units. The trade school should also offer one-year courses in dressmaking and millinery at once. These will be doubtless limited in size at first by

the number of applicants, but the effort should be to restrict the number admitted to these courses, and development should distinctly be in the introduction of longer unit courses. Dull-season courses and evening courses will doubtless in time demand consideration. The trade school will surely feel itself bound in due time to meet the needs of the larger number of workers in the machine-operating industry, through part-time courses. It also will have before it in the future the welfare of the young workers in textiles and in the mercantile establishments, unless they may have been drawn away from these less desirable occupations. The necessity for the immediate and intensive attention to machine operating indicates the importance of securing opportunity for solid permanent and expanding housing, in order that installing machines should be conducted as economically as possible.

VIII. PRESENTATION OF MATERIAL IN TABULAR FORM.

TABLE I.—*Showing women-employing industries of Worcester.*

(Based on factory inspector's report.)

Industries.	Number of establishments reported.	Number employed.				
		Total.	Men.	Women.	Boys. ¹	Girls. ²
Boots and shoes.....	7	1,131	732	399	14	16
Clothing.....	26	703	102	601	.....	22
Corsets.....	6	1,786	152	1,634	.....	149
Envelopes and paper goods.....	10	1,513	576	937	25	39
Laundries.....	13	229	.....	229	.....	.....
Leather goods.....	4	1,028	925	103	37	13
Narrow fabrics.....	4	332	33	299	.....	59
Textiles.....	18	2,926	1,562	1,364	129	121
Thread.....	2	130	35	95	.....	2
Underwear.....	5	901	92	809	.....	4
Wire and metal goods.....	30	9,024	7,917	1,107	222	62
Miscellaneous.....	34	1,423	1,048	375	57	26

¹ Miscellaneous: 2 emery factories; 4 piano factories; 1 drug; 2 food; 1 printer; 4 casket factories; 1 machinery brush; 1 comb; 1 cigar; 1 yeast; 1 dyeworks; 6 paper-bag factories; 1 bookbinding; 6 newspaper; 1 heel; 1 unclassified.

² Included under men.

³ Included under women.

Of the women-employing industries of Worcester, envelopes and paper goods, narrow fabric, textiles, thread, and wire and metal goods employ almost one-half (47 per cent). Boots and shoes, clothing, corset, and muslin underwear employ about two-fifths (43 per cent) of the women.

TABLE II.—*Showing women-employing industries visited.*¹

Industries.	Number of establishments visited.	Number employed.		
		Total.	Women.	Girls.
Boots and shoes.....	3	146	107	38
Clothing.....	6	359	341	18
Corsets.....	3	2,324	1,965	359
Dressmaking.....	10	207	191	16
Millinery.....	16	276	249	27
Paper goods.....	3	653	535	118
Textiles.....	5	807	786	51
Underwear.....	5	570	550	20
Miscellaneous ²	4	127	87	40

¹ The difference in the date of visit may explain the discrepancies between these figures and those reported by the factory inspector, as shown in Table I. This statement does not include some establishments visited which were not on the inspection list. Hence, totals used in the text are often formed by a combination of the reports of the inspector and of the investigator.

² Miscellaneous: 1 leather-goods factory; 1 thread factory; 1 wire factory; 1 fancy-biscuit factory.

The representative character of the study will be seen from the following proportion of industries which were visited and studied:

Boots and shoes.—3 out of 7 establishments employing 27 per cent of the women in the trade.

Clothing.—All the clothing establishments.

Corsets.—3 out of 6 establishments employing more than the total number reported by the factory inspector.

Envelopes and paper goods.—3 out of 10 establishments employing 57 per cent of the women in the trade.

Textiles.—5 out of the 18 textile manufacturing establishments employing 55 per cent of the women in the trade.

Muslin underwear.—All of the underwear factories.

TABLE III.—*Showing ages of girls (727) leaving school during the year September, 1909, to September, 1910, according to age and schooling certificates.*¹

Age.	Number.
Under 14 years of age ²	7
14 and under 15.....	431
15 and under 16.....	177
16 and under 17.....	24
17 and under 18.....	4
Unclassified.....	84
Total.....	727

TABLE IV.—*Showing grade of leaving school during the year September, 1909, to September, 1910, according to age and schooling certificates.*

Grade.	Number.	Grade.	Number.
Third grade.....	6	Ninth grade.....	130
Fourth grade.....	2	High school.....	44
Fifth grade.....	53	Unclassified.....	180
Sixth grade.....	89		
Seventh grade.....	127	Total.....	727
Eighth grade.....	96		

¹ Sixty per cent of these girls who had left school were only 14 years old.

² Under 14 years of age, 7, viz: 11 years 10 months, 13 years 2 months, 13 years 5 months, 2 of 13 years 10 months, and 2 of 13 years 11 months.

So far as the age and schooling certificates enlighten us, 17 per cent of those who reached the ninth grade remained until the end of the year, but the statistics on this point are undoubtedly incomplete.

Twenty-one per cent of the girls withdrawing from school the past year left before completing the sixth grade. About one-third dropped out in the sixth and seventh grades. More than one-half dropped out before reaching the ninth grade.

TABLE V.—*Showing educational status of 214 families visited.*

	Number.
Educated.....	6
Intelligent.....	124
Ignorant.....	44
Unclassified.....	40

Fifty-eight per cent of the girls leaving in the past year who were visited came from intelligent families.

TABLE VI.—*Showing types of homes, on same basis as Table V.*

Comfortable.....	118
Lacking in comfort.....	36
Poor.....	34
Unclassified.....	26

Fifty-five per cent of these girls visited came from really comfortable homes.

One-half, on a very conservative estimate, left school without economic pressure; and of these almost one-half were 14 years old, 25 per cent had not reached the seventh grade, and 60 per cent could not have passed the ninth-grade test.

TABLE VII.—*Showing nativity of 214 girls visited.*

Visited in homes:		14 yrs. old.	15 yrs. old.
Scandinavian.....	46	Leaving without economic pressure:	
Irish.....	44		
American.....	40		
English.....	17		
Canadian.....	14		
Russian.....	9		
Italian.....	7		
Jew.....	1		
Finn.....	1		
Syrian.....	1		
Lithuanian.....	1		
Pole.....	1		
Tusk.....	1		
Scotch.....	4		
German.....	2		
Colored.....	1		
No data.....	24		
		Swede.....	14
		American.....	10
		Irish.....	9
		French.....	5
		Canadian.....	3
		English.....	1
		Italian.....	1
		Russian Jew.....	1
		Pole.....	1
		Scotch.....	1
		Russian.....	1
		No data.....	125

TABLE VIII.—*Showing occupation of girls who left school during the year 1909-10.*
(Based on age and schooling certificates.)

Mercantile establishments.....	163
Manufactures.....	549
Miscellaneous.....	15
Total.....	727

(a) *According to industry:*

Manufactures into which girls go from school (showing the predominance of one great type of industry—machine operating—as a girl-employing industry).

	Girls.
Corsets and accessories.....	206
Textiles, spinning, knitting.....	104
Metal trades.....	71
Paper goods.....	46
Clothing, factory product.....	36
Shoes and leather.....	33
Food and drug products.....	21
Millinery.....	8
Novelties.....	5
Dressmaking.....	3
Brushes, combs, rubber.....	3
Laundry.....	4
Printing.....	2
Piano company.....	1
Vaudeville.....	1
Miscellaneous.....	5
Total.....	549

Of the 727 girls, 22 per cent entered mercantile establishments, 75 per cent went into manufactures, 38 per cent entered machine-operating trades, and 28 per cent entered corset factories.

(b) *According to type of industry:*

1. *Unskilled trades—*

Textiles, spinning, knitting.....	104
Metal.....	71
Paper.....	46
Food and drugs.....	21
Novelties.....	5
Brushes, combs, rubber.....	3
Piano.....	1
Vaudeville.....	1
Miscellaneous.....	5

Total..... 257

2. *Medium skilled trades—*

Corsets and accessories.....	206
Clothing.....	36
Shoes and leather.....	33
Laundry.....	4
Printing.....	2

Total..... 281

(b) According to type of industry—Continued.

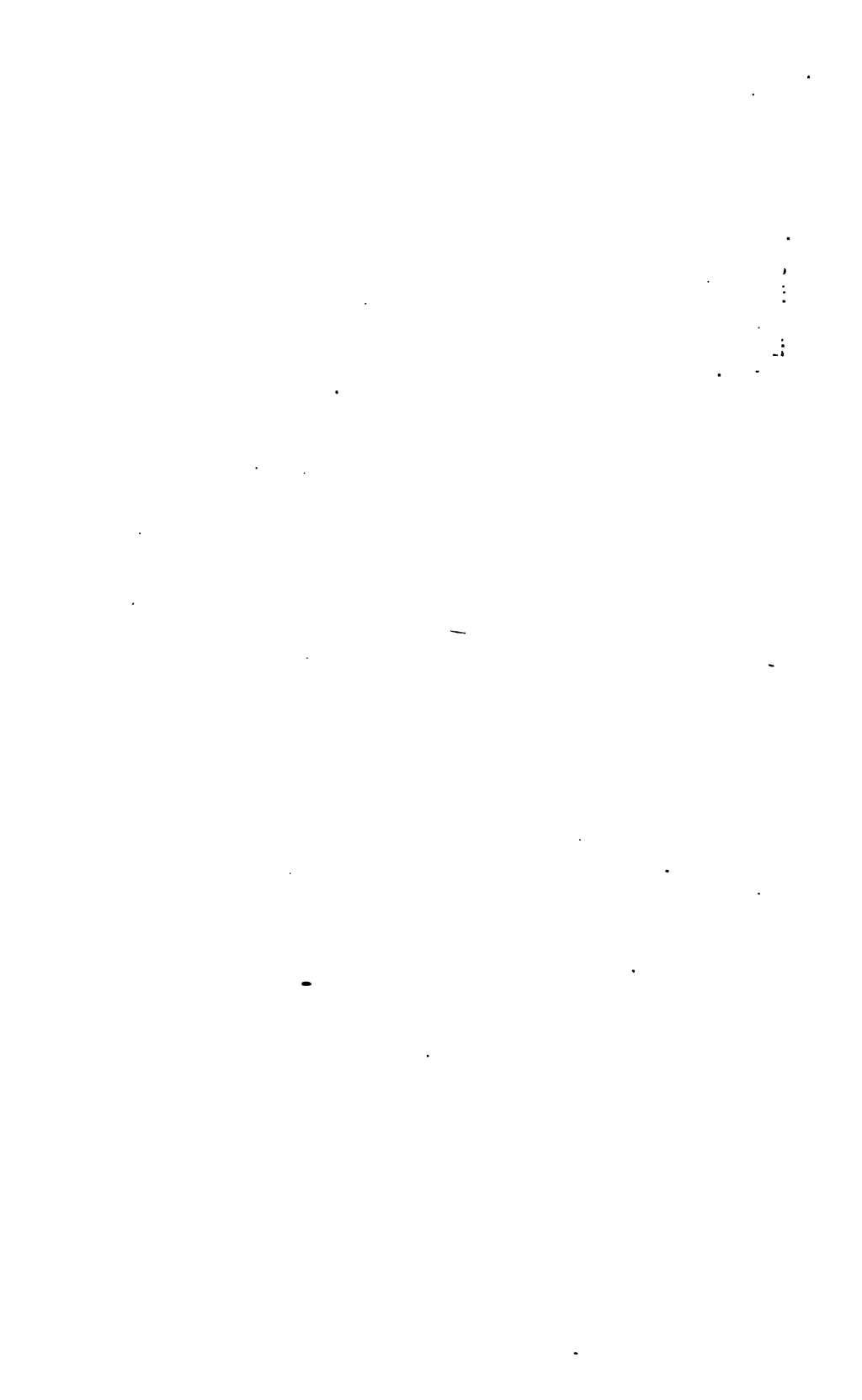
3. Skilled trades—

Millinery.....	8
Dressmaking.....	3
Total.....	<u>11</u>

Of these girls, 22 per cent entered mercantile establishments, 35 per cent entered unskilled industries, 39 per cent entered medium skilled industries, and 1 per cent entered skilled industries.

No tabular statement of the wages and conditions in the industries is presented, since the studies are type studies only.







THE FIFTEENTH INTERNATIONAL
CONGRESS ON
HYGIENE AND DEMOGRAPHY

HELD IN WASHINGTON, D. C.
FROM SEPTEMBER 16 TO OCTOBER 3, 1912

I. *Some Lessons and Suggestions from the Exhibition*

By FLETCHER B. DRESSLAR

*Specialist in School Hygiene and Sanitation
Bureau of Education*

II. *Digests of Some of the Papers Presented at the Congress*



LETTER OF TRANSMITTAL

DEPARTMENT OF THE INTERIOR,
BUREAU OF EDUCATION,
Washington, D. C., March 20, 1913.

SIR: The Fifteenth International Congress on Hygiene and Demography, held in Washington City in the autumn of 1912, was a notable event in the history of sanitation and in the discussion of the conditions of the physical and mental health of the people. The exhibition held in connection with the congress was instructive in many ways, and contained much of interest to those who are responsible, directly or indirectly, for the health of children.

The first section of the accompanying manuscript contains brief and accurate descriptions of some of the most important of the exhibits, and comprehensive summaries of their meaning. The second section consists of excerpts and summaries containing the gist of some of the most important papers read at the congress. I believe both will be permanently helpful to teachers, school officers, and others interested in the health of children and the sanitation of homes, schools, and other places in which they work. I therefore recommend the publication of the manuscript as a bulletin of the Bureau of Education.

Respectfully submitted.

P. P. CLAXTON,
Commissioner.

THE SECRETARY OF THE INTERIOR.



INTRODUCTION.

The exhibition arranged under the direction of Dr. J. W. Schereschewsky, of the United States Public Health Service, in connection with the Fifteenth International Congress on Hygiene and Demography held in Washington the latter part of September, 1912, was in many regards a remarkable one. To those who had no time to spare in making a careful and critical examination of the materials and facts presented, as well as to those who strolled through the various sections out of mere curiosity, the multiplicity of details was doubtless overpowering and perplexing. Those, however, who had time to examine carefully and to classify and unify the complex materials presented, saw that comparatively few hygienic principles were involved.

When people have pure food, pure water, pure air, and are freed from the dust of houses, streets, and manufacturing industries; when they have good light and abundant sunshine, sanitary houses, barns, and outbuildings; when they are protected from germ-carrying agencies, such as flies, mosquitoes, rats, mice, and all such pests; when they are protected from people who are carriers of disease germs, and taught how to disinfect their homes and communities; when they are taught to work and play, eat and sleep, dress and bathe, according to the laws of health; when they learn to care for their teeth and their eyes, the main problems of hygienic living will be solved and human life relieved of its greatest sources of suffering and disease.

The attempt has been made in Part I of this bulletin to describe in a brief way some of the suggestive exhibits presented in connection with this congress. In no way does it attempt to give an adequate idea of the extent and richness of the exhibition as a whole, but merely to select a few exhibits that had more or less direct bearing on school work and school conditions.

Part II is made up of abstracts from a few of the papers presented at the congress. A volume containing these abstracts was printed by the congress in English, and those here reproduced have been taken from this volume, with few changes.

THE FIFTEENTH INTERNATIONAL CONGRESS ON HYGIENE AND DEMOGRAPHY.

PART I.

SCHOOL BUILDINGS AND SCHOOL SANITATION.

In connection with the various State health exhibits, many photographs of school buildings were exhibited. Most of these represented good buildings, constructed in such a way as to aid in conserving the health of the children. Some were bad. The most common faults consisted in imperfect illumination and inadequate arrangements for ventilation, for ridding the air of soot and dust, and for properly humidifying the air in the colder climates.

The problem of inducing architects and schoolmen to locate the windows in schoolrooms in the proper places, and to orientate their buildings in such a way as to take the best possible advantage of the light, is, it seems, an almost hopeless task. By the side of conspicuous placards lauding the value of sunshine as a disinfectant and of good light as a means of conserving the vision of the children were to be found school buildings officially commended, but so constructed that not a glimpse of sunshine could ever enter some of the classrooms for the elementary grades, while the windows were badly placed in others. The officers of State boards of health are doing a great service, but some of them must learn that the correct planning of a schoolhouse is not a matter that can be picked up incidentally. Bread pills mixed with a big dose of dogmatic assurance concerning their curative properties, discreetly given, might establish an enviable reputation; but a poorly constructed schoolhouse demonstrates its defects every day to teacher and pupils. It is to be hoped, if State boards of health are going to take a large part, directly or indirectly, in the supervision of the construction of school buildings, that they will make a thoroughgoing study of all the problems involved.

The exhibition of knock-down models of rural schoolhouses presented by the United States Bureau of Education attracted a good deal of attention. This exhibit consisted of 6 models; 3 illustrating varieties of one-room buildings, and 1 each of a two, three, and four room building. The main purpose of exhibiting these models was to set forth a plan by which the bureau will undertake to help the rural

districts to better types of school buildings. The chief obstacle which has so long blocked the way to progress in securing better types of rural schoolhouses is the inability or unwillingness of rural school trustees to employ a competent architect to plan their buildings and supervise the construction. The so-called architect and builder, or more often the ordinary "hatchet-and-saw" carpenter of the country, generally builds a schoolhouse by copying the plan of some building in a neighboring district, which in turn has been copied from some other one. As a result the progress in constructing better and more beautiful buildings is slow and uncertain. It seemed that progress in these regards might be accelerated and guided by preparing some carefully planned models, in a knock-down form, to be sent directly to district trustees or to county superintendents, then set up and copied by the carpenters who are called on to build rural schools. The floor plans, elevations, and all parts of these models were drawn to scale.

Three of the models, 2 one-teacher buildings and 1 three-teacher building, were constructed by Cooper & Bailey, architects of Boston, and 1 one-teacher building, 1 two-teacher building, and 1 four-teacher building, were constructed by Mr. W. B. Ittner, the school architect of St. Louis. The floor plans were furnished by the Division of School Hygiene and Sanitation of the Bureau of Education. Duplicates of these models have been prepared by the Bureau of Education and are loaned, on request, to those who can use them in building schoolhouses.

A model and numerous photographs illustrated types of reenforced concrete buildings. The model shown was for a concrete building suitable for use in a one-teacher district. These concrete buildings were designed particularly to meet the most advanced demands of State regulations for fire protection. They are literally fireproof. A special feature claimed for these buildings is their economy from the point of view of construction and repairs. Public School No. 5, at Irvington, N. J., has been in use four years, and the statement was made that not 1 cent has been spent on it for repairs. By the unit system, buildings of factory-made concrete parts are now being put up that "are fireproof, weatherproof, dust proof, soundproof, and sanitary," at a cost less than if built of brick or wood. Photographs were exhibited of many large school buildings constructed of reenforced concrete at a smaller cost than the estimates submitted for the construction of the same in brick and wood.

Such an exhibit as this is encouraging, for there can be little doubt that under many conditions the best and safest material to use in the construction of school buildings is reenforced concrete; and when it is found that the first cost may be less rather than greater, it will cause more school architects to plan for the use of concrete.

Glass blackboards.—Several glass blackboards were on exhibition. It is claimed for these blackboards that they are absolutely non-absorbent; that they will not crack, craze, or deteriorate in any way; that they are cleaned with a plain rag much more easily than the ordinary type of board. Since the idea of glass blackboards will be new to many people, the following brief description of how they may be made by any careful workman may not be amiss:

Take a pane of heavy glass, the size desired, lay it flat on a table, and with good quality of fine emery dust mixed with a pure thin oil scrub it all over so as to cut the surface evenly, completely, but lightly. Some skill will be required to do this, but no one ought to fail. Some time will be required, and a good deal of labor to prepare the surface satisfactorily. When this is done roughen the back side slightly in the same way and paint it the color desired.

Set the glass with the painted side against the wall as slate is set, leaving the finely and carefully cut surface on the outside for the crayon, and the board is ready. It is almost unnecessary to say that the color on the back side seems to be a part of the glass itself. Such a blackboard can be washed or scrubbed without damage, and will absorb neither oil from the hands of the children nor water from a sponge. If made well it will cut the chalk readily, will show a good mark, may be easily cleaned, and it improves with use. Glass blackboards are the most sanitary boards thus far devised, and of course will last indefinitely unless broken by accident.

Drinking fountains.—Various kinds of sanitary drinking cups and drinking fountains were on exhibition. In addition to those forms generally known and of proved value, there was a new device for sterilizing drinking cups. This consisted of four aluminum cups so connected with a machine that while one cup is filling, another is sterilized by an alcohol flame, so that while the same cups are used again and again, there is no need of anyone drinking from a cup that has not been thoroughly sterilized. This device, while it offers an opportunity for complete sterilization, is neither practicable for ordinary school systems nor absolutely safe, for there is nothing to prevent one child from drinking a part of the water from a cup and then passing it to another. Besides, it is an expensive apparatus, and likely to be very troublesome for children to manipulate.

Many varieties of sanitary paper drinking cups were shown, accompanied by convenient devices for holding them. These are both sanitary and inexpensive, but nothing of this kind is likely to prove satisfactory where large numbers of school children must drink quickly and safely. Paper cups are especially valuable in hotels, railway trains, and other public places where it is impracticable, for one reason or another, to use bubbling fountains. They will not

prove satisfactory for large schools, and especially for the primary grades.

Several types of bubbling fountains in connection with ordinary water jars, or coolers, have been manufactured for use in rural schools, where waterworks systems are not found, or even where a pressure tank is not used. Two kinds of such fountains were on exhibition. These will prove very helpful to country and village schools, and deserve the attention of all who are seeking to avoid the menace of dirty buckets and common drinking cups.

There were two exhibits of paper towels for use in schools and in public places generally. The use of these towels will greatly simplify the problems of cleanliness and prevent the possibility of the spread of eye or skin diseases. They are put up on rollers and in pads, so that they may be used economically and with perfect cleanliness. Where carefully supervised, and where the children are taught to use them properly, they have proved acceptable and have brought great relief from the trouble and expense of individual towels. The use of the common roller towel in schools or public places should be forbidden by law everywhere.

Among other materials, devices, etc., included in the exhibition, which have a bearing on school sanitation, may be mentioned a new material for flooring, made by a New York concern. In appearance it resembles artificial stone, but it is of light weight, comparatively noiseless, nonabsorbent, and, it is claimed, is not a rapid heat absorber. It is easily cleaned, can be made in several colors, and is thoroughly fireproof. This material deserves the attention of school architects and schoolmen, with especial reference to its use in halls and domestic-science rooms.

The Forsyth Dental Infirmary for Children.—One of the most significant facts connected with the movement for conserving the teeth of children is the founding and endowment at Boston of the Forsyth Dental Infirmary for Children. A beautiful model of the building now under construction at 140 Fenway was exhibited. This institution was founded by John Hamilton Forsyth and Thomas Alexander Forsyth in memory of their brothers, James Bennett and George Henry Forsyth. It was incorporated in 1910, and has an endowment of \$2,000,000.

It will offer opportunity to all deserving children under 16 years of age to obtain freely expert advice and care for their mouths. * * * Its functions will include not only care of the teeth, but also related conditions, including defective palates, adenoids, etc. Much of the work it will be called on to do in its early years will deal with the cure of defects already established. It is expected that, as its scope enlarges, it will have to do in great part with the prevention of defects by oral prophylaxis.

Apart from the actual work on mouths, it is expected to furnish valuable practical teaching in oral hygiene. Just as the sanatoria for the cure of tuberculosis have served

as centers for the dissemination of wisdom concerning personal hygiene by the example and teaching of their patients, so it is expected that this institution will promote public education in not only oral, but also general hygiene.

Provision has been made for research. A research fellowship has been established and is now held by a man selected for his fitness. The laboratory will be so equipped as to offer opportunity under expert supervision for special work in research by men who desire to do this work.

The museum of the institution, it is hoped, will be a depository for materials of every kind which can be used for the teaching of oral hygiene. The lecture room will be used for the education of the public in dental matters.

The building is to be a model in all those things which will insure hygienic conditions for operators, research workers, and the children.

Dental clinic.—A fully equipped dental clinic was a feature of the exhibit, and dentists were in attendance, busily examining the mouths of children. The object was to show the method of making an examination of the teeth of children in the public schools, and of keeping a record of the same. The examinations were made in an aseptic manner, the only instruments being a bit of wood of suitable size and shape, which was used but once, and a mouth mirror which was carefully sterilized by the assistant after each examination; the hands of the operator never touched the child. It was designed to call attention to the importance of the examination of the mouths of school children, as it is recognized at the present time that a large number of the general infections result from neglected mouth conditions. An operative clinic in connection with the examining clinic was conducted simply as a demonstration of the methods of working for school children from charts after the examinations had been made. It may be interesting to state that the operators obtained their material—children—through the cooperation of the Associated Charities, and they could have had an almost unlimited amount of material, the conditions were found to be so distressing.

Charts were conspicuously displayed bearing inscriptions such as these:

The temporary set of teeth is equally as important as the permanent set. Childhood is the growing period, when the body should receive the maximum of nutrition. Food can not nourish unless properly masticated and prepared for absorption.

The child who has defective teeth is more easily a prey to all infectious diseases.

Spiral fire escape.—An interesting exhibit was a model of a spiral fire escape in which, to the delectation of visitors, china dolls were sent safely down from imaginary tall buildings. The essentials of this fire escape consist of a large steel cylinder with a spiral slide securely fastened to the sides and to the central axis. From each floor of the building to be protected there is a metal runway from the building to an opening into the spiral. When, therefore, the fire escape is to be used, the children march out and jump into the spiral, feet foremost, and gravity does the rest. The danger from clogging

the spiral is negligible, and the danger from landing below is very slight. It is to be hoped, however, that fire escapes *per se* will soon be useless, for there is now no excuse for the construction of non-fireproof buildings for school purposes, especially in cities.

The dust problem.—Most people know in a general way that it is unwholesome to breathe dust, whether it is found in the air in buildings or outside, for dust particles are not only deleterious in themselves by irritating and loading the mucous membranes of the air passages, but they carry with them great numbers of bacteria, pathogenic and nonpathogenic. The problem, then, of clean air is closely linked to the problem of ventilation, as well as to that of general sanitation.

One of the hard problems in school sanitation in cities has been that of ridding the air of dust and soot before it is introduced into the schoolroom. It will not be such a difficult problem to keep the air of school buildings free from dust if the janitor is able to take from the floor most of the dust carried in by the children before it is lifted into the air.

There was demonstrated at the exhibition a type of oil brush that may be used to sweep all kinds of floors. The brush is fitted with a reservoir containing plain kerosene oil. When the brush is properly used the light row of center tufts on the brush is kept just moist enough with the kerosene to dampen the dust and roll it together, but not to oil the floor. The brushes are made in numerous styles and sizes. They are already in practical use in many schools in the West and in some of the public buildings at Washington. Such a brush deserves careful consideration, especially by country and village school officials, where muddy shoes are so common and where dust is consequently a serious problem within the room.

Several varieties of sweeping compounds designed to gather and hold the dust when floors are swept were exhibited. These are on the market and need no special mention here. A good quality of sawdust moistened with paraffin oil is a good substitute for these compounds, though some of the preparations on the market have advantages in holding the dust, and they are not prohibitively expensive. Experiments made with such a compound by Dr. Alvin Davison, professor of biology at Lafayette College, proves its use in gathering up germs. He says, in a pamphlet on "Dust as a Carrier of Disease in the Schoolroom," that "in sweeping an ordinary schoolroom the preparation used was able to catch and hold fast more than a hundred million germs."

For floors and walls there were mops, cloths, and brushes impregnated with a chemical which causes them to catch and hold the dust. These mops, cloths, and brushes are washable after use, and when thus cleaned can be used repeatedly. Many of them are particularly

useful for schools. In this connection may be mentioned the janitor-size handle duster for cleaning walls.

All of these are much more efficient than damp cloths or any ordinary dust cloths. They, of course, are as applicable to home use as to school use. It will be worth the while of school men to examine these brushes and test them by the actual and regular work set for their janitors.

A very instructive exhibit by the Massachusetts State Board of Health showed specimens of dust taken from machines operated by workmen and gave a vivid suggestion of how the lungs of workmen are exposed to all sorts of irritation and unwholesome conditions. This exhibit showed 20 varieties of dangerous dusts. Among these were noted: Dust from raw cotton, this dust being carried from the field from the time it is picked until it reaches the mill; jute fiber dust, broom-corn fiber dust, rattan dust, celluloid dust, dust from fur, and from various stages in the manufacture of leather and many other commodities.

Photographs were exhibited showing many ingenious devices to prevent the entrance of dust with the inspired breath. Not only must the dust be drawn from the rooms by exhaust fans to make some manufacturing industries safe, but the eyes of the workmen must be protected by strong glasses, and they must breathe through various forms of protecting absorbents to avoid the dangers of noxious fumes and deleterious gases. Progress in controlling "industrial dust" was shown in many exhibits, and this augurs well for better care of the workers of the future.

Cleaning and humidifying the air.—A complete air-washing and humidifying device was exhibited, the essentials of which are as follows:

The air to be used in the school building or manufacturing establishment is drawn through a chamber in which a battery of spraying nozzles are situated. These sprays are so set, so constructed, and operated that the water is broken into a fine mist and driven directly into the teeth of the incoming current of air. As a result, the dust particles in the air are laden with moisture and the space between the gaseous atoms composing the air, filled with moisture; or, in common parlance, the air is completely saturated. The air then strikes a system of zigzag eliminator plates set vertically, over which sheets of water flow. The moisture-laden dust is caught by these streams of water and carried into a settling tank below, or directly to a waste water pipe. The saturated, washed air is then heated, if heat is required, or in warm weather driven directly into the rooms. The controlling devices for regulating the temperature of the water in the spraying nozzles, and the temperature of the air driven into the rooms, are essential elements in regulating the percentage of satu-

ration. Excellent results may be expected where such machines are properly installed and operated. One practical difficulty is suggested, however, and that is that a machine as carefully planned and built as this requires skill and brains on the part of the operator in order to obtain the best results. The ordinary school janitor is not competent to handle it and keep it working as it should and would with more intelligent supervision. This difficulty, however, is due to the fact that our general janitor service is at fault. The janitor of a modern up-to-date school must be trained to work with modern machinery, if school sanitation is to keep pace with the demands of health conditions. Business concerns put such machinery under the control of trained engineers.

If school buildings in cities could be removed from the smoke and dust zone and placed in large grounds, there would be less need of washing the air. But the need for humidifying the air in cold climates is generally recognized by all students of school hygiene.

Schoolrooms where dry air is troublesome will be able to relieve this dryness somewhat by the use of a device in the exhibition consisting of a wheel-shaped affair made with crossed porous tubes attached to an ordinary electric fan. The tubes as exhibited were fed with a fragrant compound of oil of pine needles, oil of sweet birch, oil of sandalwood, and eucalyptol. This gave a delightfully refreshing odor and added some moisture to the air. They could be made larger and set in a hot-air chamber and fed with water. This device has been in use in Germany for a number of years. It is not claimed that the apparatus will properly humidify the air; it will, however, alleviate to some degree the conditions in a schoolroom where the air is dry and malodorous.

Sanitary toilets.—It is almost futile to have clean schoolrooms, sanitary drinking fountains, and the other modern means of preserving the health of the child in school unless equally great attention is paid to the sanitation of the school toilet, whether in the building or out of doors. In the first place the lesson of contamination needs to be continually driven home. Early life is intricately bound up with it, and unless we teach the children of to-day what is wrong with most of our sanitary arrangements, and how they can be made right, the parents of to-morrow will be as much at fault as we are to-day.

The accompanying illustration of a model exhibited by the United States Public Health Service shows as simply as is possible what happens in too many instances on school grounds or on the farm. The scene is a typical attractive farmhouse, but the modeler for our purpose has cut away the earth which hides from us the unpleasant underside of the picture. The well is bored deep—there can be no complaint on that score. The arrangement of the strata, however,



MODEL SHOWING WELL POLLUTION.



tells the story of contamination. From the privy the waste oozes through the porous layer into the fissured rock. Through these fissures it goes until it strikes the layer of impermeable clay between the rock and water-bearing strata. Not being able to get through the clay, it follows the slope and soon reaches the well bore. On the other side of the well the waste from the stable penetrates similarly the porous layer and works down through the fissures in the rock until it too finds a resting place in the already contaminated well.

The problem of the farm and school privy, therefore, is one of arresting the waste before it can get into the ground and contaminate the soil and the water supply. How much can be done to remedy the usual bad condition by making certain changes in the sanitary arrangements of the old-fashioned closet is seldom realized.

The United States Public Health Service showed a number of models of sanitary privies that are a striking contrast to the typical school and farm building. These privies are, first of all, properly ventilated, in forcible contrast to the prevailing type, and the openings to provide ventilation are carefully screened. The waste matter, instead of entering the ground on its journey to some well or spring in the vicinity, is caught in a sanitary container, where it can be easily treated to remove the great mass of objectionable matter.

The L. R. S. privy was shown, the principle of which is as follows: The solid matter is liquefied, and the liquid that issues from the container is of small volume, very much less dangerous to health, and can be easily sterilized if desired. The construction of this privy is not expensive, and it can be built to serve any country school. An account of sanitary privies, with illustrations, may be found in Bulletin No. 37, 1910, of the United States Public Health Service, and may be had from the Superintendent of Documents, Government Printing Office, Washington, D. C., for 5 cents.

School desks.—The proper adjustment of school desks is still a problem, as the ideal hygienic school desk has yet to be made. In addition to a number of the usual styles of school desks, a special desk for crippled or abnormal children was displayed. The chair accompanying this desk has an adjustable sloping back, and the desk itself is adjustable to different heights. A special feature of the adjustable chair seat for crippled children is the hinged section, which remains up or down according to the needs of the child; that is to say, if the child has a stiff leg, the seat may be adjusted to its support without discomfort to the child. Several examples of movable seats were shown, and a special plea was made in connection with this exhibit for this type of seat. Attention was called to the danger of forcing pupils to sit at a fixed desk of specific size. The literature

distributed by the exhibitors quotes Dr. Montessori to the following effect:

The principal modification in the matter of school furnishings is the abolition of desks and benches or stationary chairs.

I know the first objection which will present itself to the minds of persons accustomed to the old-time methods of discipline—the children in these schools moving about, will overturn the little tables and chairs, producing noise and disorder—but this is a prejudice which has long existed in the minds of those dealing with little children, and for which there is no real foundation.

Swaddling clothes have for many centuries been considered necessary to the newborn babe, walking chairs to the child who is learning to walk. So in the school we still believe it necessary to have heavy desks and chairs fastened to the floor. All these things are based upon the idea that the child should grow in immobility, and upon the strange prejudice that, in order to execute any educational movement, we must maintain a special position of the body.

HYGIENE AND TUBERCULOSIS.

The health authorities of New York City are undertaking an almost superhuman task in attempting to check the ravages of pulmonary tuberculosis. Without going into the details of the plan presented as a part of their health exhibit, excerpts from one of the Monograph Series (No. I, February, 1912), published by the department of health, and reprinted in the appendix to this paper (p. 40), will give some idea of the extent of the educational work of the department in teaching the people how to prevent infection and how to undertake to effect a cure when infected. These directions are worth the careful consideration of teachers, health authorities, and all others who are striving to conquer the "Great White Plague."

The value of pure air.—In all the exhibits relating to the newer and better school buildings of the country, a noticeable improvement was evident in methods of construction and equipment with reference to ventilation. All large city school buildings recently constructed are equipped with the plenum system of ventilation. This means that fresh air is forced into these buildings by a fan system so installed and so regulated as to furnish to each child a sufficient supply of pure air. Because many plenum and other systems of ventilation have been erroneously installed and poorly operated in modern school buildings in the past few years, some school men have hastily concluded that we are proceeding on the wrong method, and have condemned without due consideration.

The chief cause for this complaint is the attempt to furnish sufficient air with a fan or fans too small to do the work expected of them. It is false economy to install fans requiring a maximum speed to furnish the quantity of air required. The ducts to carry the air

to and from the schoolrooms should be ample to insure sufficient movement of the air to keep all parts of each room well ventilated. It was interesting to note in the large exhibits of up-to-date manufacturing establishments that inadequacy in these respects was generally avoided, for it has been learned that economy in operation is always conserved by the use of machinery whose maximum power is always far beyond the ordinary requirements. Where many people work, for many consecutive hours during cold weather, in tight, well-constructed buildings, no other system of ventilation has been devised which gives as good results as the plenum system, aided by an exhaust fan or some other method of artificially creating a draft in the outlet ducts. In practically all of the manufacturing industries where pure air for the workers means better work and a larger output, the ventilation furnished is more nearly adequate to the needs of good health than in our best schools. False economy in factories shows in dollars and cents; in schools the direct economic bearing of bad air is not so readily seen, but the bills are finally paid in health and life.

Open-air schools and open-air sleeping rooms.—The movement for open-air schools is directly traceable to the recuperative effect of outdoor air on sick children and adults. It was to be expected, therefore, that the exhibits of hospitals and sanitariums, especially those designed for the care of tuberculous patients, would show the greatest progress in this direction, and that schools for defective and anemic children should show more provision for outdoor classrooms than schools for normal and healthy children. But the fact that the effect of preaching the gospel of fresh air and of the out-of-doors was shown in all such buildings is a very hopeful sign. Moreover, the movement is spreading to the homes, the shops, and especially to those industrial and financial organizations which count the health and welfare of their workmen as a financial asset. It marked a new era in educational hygiene when insurance companies found that it would be profitable for them to teach their policy holders not only to keep themselves well and thus prolong their lives, but also to keep their families well and happy, and thus indirectly to make the payment of premiums more regular and certain. In one of the beautifully printed booklets exhibited by a manufacturing establishment, photographic illustrations were shown of methods of constructing outdoor sleeping rooms, and were accompanied by such legends as these:

Plenty of good fresh air will make the fires of life and health burn brighter; therefore do not hibernate—ventilate.

If you can't work outdoors, sleep outdoors.

The only night air that is injurious is last night's.

A life insurance company showed a model of its sanitarium where consumptives are treated. In connection with this model placards were exhibited saying:

When a consumptive can not be sent to a sanitarium, arrangements for taking the cure at home should be made as soon as the disease is discovered.

Sleep with your windows open. Do not be afraid of night air. Do not be afraid of cold air.

Do not live in a room where there is no fresh air. Do not work in a room where there is no fresh air. Do not sleep in a room where there is no fresh air.

Consumption is a preventable disease; it is a curable disease.

Sunlight and fresh air kill tuberculosis germs.

This sanitarium was constructed for the cure of clerks and those who have developed tuberculosis while in the service of the company. There are 415 acres included in the sanitarium grounds. The buildings are fireproof throughout, and are designed to accommodate 200 patients. It is planned to have also an extensive garden in connection with it, where fresh farm products can be utilized for food, and where helpful outdoor work for the patients may be obtained. It is needless to say that in the buildings open-air sleeping rooms and opportunities for open-air exercise and recreation have received paramount attention.

The same company, in connection with its exhibits, distributed an illustrated pamphlet with the title, *Directions for living and sleeping in the open air*. On the bottom of the outside cover, it was stated that this was "issued for the use of policy holders." This pamphlet was prepared for the company by Dr. Thomas S. Carrington, assistant secretary of the National Association for the Study and Prevention of Tuberculosis. It is an educational document, pure and simple, written by an eminent specialist and illustrated in such a way as to help anyone in the construction and equipment of open-air sleeping rooms. It is barely possible that this company had in mind to do a general social service by the publication of this pamphlet; but it is practically certain that it would not have been printed had they not realized that it would serve to teach their policy holders and all others who read it that sleeping in the open air will insure better health and longer lives and in the end prove a good investment for all concerned. Such educational work pays, and business corporations are not slow to take advantage of the commercial aspects of good health. This kind of "enlightened selfishness" is a sort to which no worker can object, for it helps both capital and labor and harms neither. It approximates a phase of practical ethics which suggests a basis for a larger common understanding.

This same company has established a visiting nurse service for its sick industrial policy holders. While of course such service is

expected to aid directly in helping to save the lives of these policy holders, the real aim and purpose of this service is educational. The significant remark made about the value of the nurse in the printed matter is this:

It is sufficient for the purpose of the company to realize that the work of a nurse is part of an educational propaganda, and that in the long run her services must redound to the general benefit and welfare of the policy holders. There can be little doubt, however, that in time strong evidence will be forthcoming of a considerable improvement in the mortality of policy holders. * * * As a matter of interest, it may be noted that at the end of June, 1912, the nursing service experiment was being conducted in approximately 1,104 cities and towns in the United States and Canada, and for the year 1912 it is conservatively estimated that a total of 1,000,000 visits will be made to policy holders of the company at a total cost of \$500,000.

It would be a dull mind indeed which could not see that such activity as this, duplicated in its general purposes and work by numerous other business concerns, represents a new phase of educational service to the whole nation. It matters not who does the teaching so long as it is done effectively and purposefully.

In the exhibit of Cleveland, Ohio, showing the "Cooley Farms," there was a plaster cast model of a 500-acre farm for a tuberculosis sanitarium to cost \$500,000, as well as of a colony farm of 500 acres for an infirmary or almshouse. In the exhibit a placard stated that 2,000 acres of land furnished opportunity for 8,000 prisoners to work in the open fields, without lock or bar. "The open sky is better than the dark cell." These facts remind us again that we are giving relatively more attention to those who have gone wrong than we are giving to those who have not yet gone wrong, and will not go wrong if they have the opportunity of decent treatment and decent development. It seems unfortunate that our minds, even in exhibitions on hygiene, have been concentrated on cure instead of on prevention. Still, the fact that authorities are realizing that the open air and the sky and employment will reconstruct body and soul of both the sick and the criminal has for us the lesson so often taught of late, that fresh air, sunshine, and congenial wholesome employment offer the biggest developmental opportunity any man needs.

In order to see how the cities in the northeastern section of the country are undertaking to meet the difficult health situations brought about by the great influx of population from foreign countries and congestion of the population, one only needed to read a card posted by the Rochester (N. Y.) Public Health Association, showing the age, sex, nationality, and diagnosis of the children who were gathered in their open-air schools which were started July 4, 1912. The chart here follows.

Open-air school, Rochester, N. Y.

Age.	Sex.	Nationality.	Diagnosis.
5	Female.	Italian.	Tuberculosis.
9	Do.	German.	Do.
12	Male.	Do.	Do.
10	Female.	Italian.	Do.
9	Do.	Hebrew.	Do.
12	Do.	Italian.	Do.
9	Male.	Do.	Do.
6	Do.	American.	Do.
16	Do.	Irish.	Do.
8	Do.	American.	Do.
16	Do.	Italian.	Do.
6	Female.	Hebrew.	Do.
13	Do.	Italian.	Do.
9	Do.	Hebrew.	Do.
7	Do.	Do.	Do.
8	Do.	American.	Do.
9	Male.	Irish.	Do.
6	Female.	English.	Do.
11	Do.	Hebrew.	Do.
12	Male.	American.	Do.
10	Female.	German.	Do.
9	Do.	Hebrew.	Do.
5	Do.	Irish.	Do.
8	Do.	Italian.	Do.
12	Do.	Do.	Do.
8	Male.	Hebrew.	Do.
8	Do.	Irish.	Do.

Boy Scouts.—The exhibit of the Boy Scouts consisted chiefly of photographs of boys on the trail, in camp, fishing, signaling, drilling, and the general opportunities they have in their "hikes" for coming in contact with nature and trying to make themselves comfortable and happy under various conditions. Other photographs show them exercising, swimming, boating, and at lectures on "first aid;" studying trees, and in general trying to adapt themselves to nature and make the most of situations away from the hurry of the crowd. The great expansion of this movement in the last few years has been one of the wonders of organization. Whether or not this will degenerate into a sort of semipreparation for war, one can not say, but at present it is doing enormous good in taking boys out of the cities and giving them a breath of fresh air, and bringing them in contact with nature in its various moods and conditions. Without such an organization as this, many boys would never get the opportunity thus given for journeys into the country to test their own strength and develop their own powers.

Tom Sawyer was a philosopher, and knew how to get other boys to do his work if only in some way he could get those boys to imagine that it was play and not work.

The Kansas Boy Scouts have organized an antify campaign under the guise of uniform and military tactics and the other little folderol of organization. Wise heads have directed their energy and strength to cleaning up back yards, dirty streets, and setting an example before older people of cleanliness and all that is associated with it.

INDUSTRIAL HYGIENE.

Without doubt one of the most encouraging signs of progress in hygienic living was that shown by the rapid development of methods of protecting workmen from what are known as occupational diseases. Knowledge of the laws of health and of the economic value of health is slowly but surely revolutionizing the attitude of manufacturers toward their employees. Due to the fact that good health is now being valued as an economical asset, not only by the workman but also by the employer of labor, it is no longer a mere matter of humanitarian sympathy to furnish fresh, clean air, good light, and safe environment to workmen; it also pays. Perhaps no phase of hygienic science received, on the whole, so much attention in the exhibition as this. At first glance it may seem to indicate low ethical standards of our people to find that better health conditions are often contingent on mere economic considerations. But on closer analysis, one is inclined to believe that this is in the direction of a higher form of ethics. The fundamental principle everywhere exhibited in society, which demands returns comparable to the science and skill involved in the labor, is finding a new exemplification in the economic value of good health and congenial environment.

It is one-sided ethics to give without the expectation of some form of return. True, the highest form of return in many undertakings is not measureable by economic standards; but business life must be so measured, else it could not be maintained or developed. Where the demands of the workman for wholesome conditions are seen to be not only consistent with his own welfare and happiness but likewise compatible with the economic success of employers, then a higher and safer plane has been reached and the dangers of dissatisfaction and misunderstandings lessened.

Laundry workers are now relieved from excessive steam and humidity in the workrooms. This is done by the plenum and exhaust-fan system, which not only furnishes fresh air but removes the steam and undue humidity from the air. The exhibition on the cotton industry showed wonderful progress in the way of removing lint from the air and in humidifying and ventilating. In the best woolen mills, where workers are exposed to infection and the inhalation of shreds of fiber, the lighting and ventilation and cleanliness are being looked after with great care. There was also a great mass of photographs showing factories with ideal sanitary conditions, and some showing bad conditions and ineffective apparatus.

One of the striking features of modern factory life is the rapid development of life-saving through better ventilation. In all phases of manufacturing where dust and bits of metal or glass are likely to be scattered through the air, and thereby injure the health

of the workmen, the fan system of furnishing fresh air and exhausting the dust is bringing much relief. This method was shown in the manufacture of cut glass and photo-engraving by fan systems for exhausting the fumes and other deleterious substances released by chemical or other processes. The composing rooms of newspapers, whether in the basement or in the attic, are now ventilated and purified, not only as a means of saving the lives of the workmen, but from an economical point of view; it has been found that workmen will do better work and more work under these conditions than under insanitary conditions of the air. Even in those manufacturing establishments where comparatively little dust is released, but where many people are at work, the air is purified in winter by means of forced ventilation, and in summer large windows furnish abundant fresh air.

The industrial diseases reported to the State department of labor for the first nine months of 1911, under New York reporting laws, show a total of 146 cases, lead poison leading all others, with caisson disease second.

The best department stores throughout the country are seriously engaged in furnishing to their salesmen and women good air, rest rooms, sanitary toilets, ventilated locker rooms, sanitary drinking fountains, emergency hospitals for women; and instruments have been designed for analyzing air in various workshops and mercantile establishments. Rogers's apparatus for determining carbonic acid (CO_2) was on exhibition in connection with the display of mercantile and manufacturing establishments.

A large and well-known manufacturing company exhibited its care for the health of its employees by illustrated lectures on digestion, personal hygiene, circulation, respiration, effects of narcotics, housing conditions, tuberculosis, venereal diseases, and campaigns against the fly. It attempts to improve its shop conditions by special cleanliness, systematic disinfection, and perfect ventilation. It furnishes baths for all its employees, and maintains a sanitary barber shop. Clean aprons and sleevelets are provided, also individual towels, combs, and brushes, the latter being sterilized daily. It employs a factory physician who makes a physical examination of all employees; an oculist who looks after the eyes of the workmen; trained nurses to care for the sick and advise those who are in need of their services. It provides an emergency hospital and ambulances. It has organized relief associations, and changes the occupations of the workmen in order to help them maintain their health.

One cabinet of this exhibit was devoted to the importance of air and light. Prominent among the placards in this cabinet were the following:

Don't sleep where there is no fresh air; don't work where there is no fresh air; don't live where there is no fresh air.

The trouble is that people do not allow enough fresh air and enough sunlight into their rooms.

Consumption causes more deaths than any other disease. Nearly one-third of all the people that die between 20 and 45 years of age die of consumption.

Consumption is caused by the dust from dry spit. Don't spit on stairs. Don't spit on sidewalks.

The germs of tuberculosis enter the living body through the lungs and mouth by breathing; also by infected food.

The only consumptive to be afraid of is the careless consumptive. He coughs and spits anywhere and everywhere; he is a danger to the neighborhood.

Alcoholic drinks are particularly bad for persons suffering from consumption. They don't cure, they kill.

A large number of beautifully colored photographs of interiors of workrooms and machine shops, showing abundance of good light, were exhibited. The grounds about the buildings are kept clean and are beautified with vines and flowers. One placard stated that four-fifths of the buildings are glass, thus giving ample opportunity for sunshine and fresh air. Air, light, water, food, and exercise are mentioned as the essentials of hygiene in connection with its industry. Fresh air is furnished by means of forced ventilation, taking the air from above the buildings and forcing it into the rooms by means of fans. Foul air is also drawn out through the wall by ventilators and exhaust fans. All air in the buildings is changed every 15 minutes. The buildings are removed from other buildings, so that there is air space between them all, and to prevent contamination of the air 160 acres of park land separate the buildings from other structures. Light is furnished through windows aggregating four-fifths of the wall space of all the buildings. The buildings are painted a soft color, so that the glare will not weary the eyes.

Sanitary drinking cups, sanitary drinking fountains, and distilled and aerated water are used, and no ice comes in contact with the drinking water. In the food department there are sanitary kitchens, a cold-storage plant, and specially trained waiters who are required to take every precaution to prevent contamination of foods. To furnish proper exercise there are gymnasiums, a country club, horse riding, baseball diamond, tennis courts, golf clubs, a cross-country walking club, and ample playgrounds. For women, morning and afternoon recesses.

Truly, such a program as this reads as if it were made for a special school of sanitary living, and in reality it is such. But primarily it was developed as a business proposition. The company has found that good health among its workers is one of its most valuable

assets, and that every precaution it can take to guard them from accident or disease is money well spent. It has also discovered that recreation and fun constitute a vital part of a man's needs, and that it pays for a manufacturer to make provision for this phase of the life of workers.

NOURISHMENT OF CHILDREN.

American custom has not yet sanctioned many health measures by the city and State that more paternal Governments have long put into effect. Most suggestions for direct supervision of the nourishment of school children in this country are generally frowned upon by educators and the public alike. At the same time, it is safe to say that American teachers have not begun to do as much in an advisory way toward solving the problem of malnutrition as they can do. Some of the points upon which the teacher can give very definite instruction were shown interestingly in the exhibit.

First of all, in a great number of the exhibits, emphasis was placed on the necessity for proper infant feeding. After the child becomes of school age, the teacher becomes in a sense the most important supervisor of the health of the children. The ill effects of insufficient or improper nourishment, which may not always show when the child is at play in the house or out of doors, are revealed directly to the teacher during the school session. Inattention, apparent dullness, and all the various irregularities that come from lack of nutrition reveal themselves to the practiced teacher.

The importance of the cleanliness of purchased products was also strikingly emphasized. If a child can be taught to understand the risk of unclean markets, he will impart this information to the parents. This is particularly important in the case of large cities having an alien population. As an example of what may be done in teaching the significance of cleanliness in the sale of groceries and similar goods, an exhibit by the market committee of the Women's Municipal League of Boston may be taken. On one side of an aisle was a model of a small city grocery and vegetable stand of the undesirable sort. The potatoes, cabbages, turnips, and onions all mingled together in dirty boxes, with a not-too-clean fox terrier standing guard over them; a rough-board table with a pile of nondescript bread, cakes, crackers, and rolls, flanked by more vegetables, and some canned goods in decidedly unattractive cans, with a cat, that notorious carrier of germs, seated in the midst. Flies were omnipresent, and the proprietor's coat was ready to be thrown over this food supply in case of rain.

On the other side was a clean market, amply protected from dust and flies. The bread was wrapped in sealed wrappers; the cakes and

rolls were under glass covers; the groceries were all kept separate and distinct in glass compartments; and the whole environment clean and inviting, with little added expense.

The whole purpose of this exhibit was to show those who ought to know the importance of the scrupulous care of food products for household consumption. The successful accomplishment of this represents one of the first and most needed steps in providing proper food for children.

The Women's Municipal League of Boston also exhibited a model of a play grocery shop of the better type, which is carried from one social settlement house to another. The children play in it, and through it are taught the value of orderliness and cleanliness. This shop as shown was inexpensive to equip, and for the few dollars outlay necessary almost any community could demonstrate to its children, and through them teach the parents and dealers themselves, the ease with which cleanliness can be obtained.

In this same connection the New York association for improving the condition of the poor demonstrated in an interesting fashion what can be done in providing wholesome and economical meals for school children. Six prepared meals were shown in models. The first three represented what the school child was fed by the parents before they had instruction in food values. The second three showed the meals provided by the parents after they knew what to give their children. If every teacher could see these two varieties and could impress in this objective way the children or their parents with the importance of the difference between the two, there would be fewer ill-nourished and underfed school children to dawdle away their time because of insufficient energy at command.

The following are the menus:

Before instruction.

Breakfast: Coffee with milk and sugar, cruller, and sugared bun.

Lunch: Coffee with milk and sugar, bread and butter, cruller, and slice of ham.

Dinner: Coffee with milk and sugar, bread and butter, bologna, pickle, piece of pie, and dish of sliced bananas.

After instruction.

Breakfast: Chocolate, bowl of cereal, pitcher of milk, whole-wheat bread, dish of prunes.

Lunch: Glass of milk, bowl of soup, bread and butter, homemade cookies.

Dinner: Lamb chop, bread and butter, spinach with egg, boiled potato, dish of bananas.

In connection with this exhibit, pictures were shown of actual scenes wherein the New York association is teaching 50,000 little mothers how to cook and manage other household duties. Photographs of children properly nourished and of those improperly nourished were displayed.

In many departments of the exhibition a great many charts and illustrative materials showing the value of the proper feeding of infants were exhibited. The difference between the natural milk for the baby and other forms of food was very strikingly illustrated. One chart from the Department of Agriculture, Bureau of Chemistry, showing the composition of foods for infants, made it very clear that no prepared food even approximated the natural breast food in its composition and proportion; cow's milk and goat's milk are far more nearly like natural human milk than any of the prepared foods on the market. Other charts showed food formulas for children of various ages. These exhibits gave a striking illustration of how modern science, worked out patiently in the laboratory, can be and is made of the utmost value in a practical way. Not only has it brought to our attention the great importance of proper diet, but it has put into the hands of the people information through the use of which they can combat nearly all sorts of disease. Those prepared foods, skillfully advertised, making claims of being more useful even than the natural diet of the child, were here shown to be faulty.

The plain lesson taught by all these charts is that the natural life is the sanitary life, and a mother who can not or will not nourish her children in the natural way has at once limited the possibilities of the child not only as to its health but also as to his natural growth and to his general future development.

MENTAL HYGIENE.

The exhibit on mental hygiene was installed through the cooperation of the National Committee for Mental Hygiene (50 Union Square, New York City), the Connecticut Society for Mental Hygiene, the Illinois Society for Mental Hygiene, and the Committee on Mental Hygiene of the New York State Charities Aid Association. The material presented was arranged in six sections. Sections A and B were designed to show the—

incidence of insanity and mental defectiveness in the United States and its significance; some explanation of the apparent increase in insanity; the cost of caring for the insane and the mentally defective; the relation of immigration to the incidence of insanity and mental defectiveness; and the effects upon the community of the uncared-for insane and mentally defective.

Some of the statistics set forth in connection with this section are rather startling. For example, it was stated that on the 1st of January, 1910, there were 187,454 insane persons in institutions in the United States. This number exceeds the number of students who were enrolled in all colleges and universities in this country at that date.

The number of patients in institutions for the insane is increasing at the rate of 6,000 per year. About 30,000 new cases enter our public and private hospitals for the insane each year, and this number must be far below the number that deserve treatment.

The apparent increase in insanity in this country was partly accounted for by the presentation of the following facts:

The average expectation of life is longer by 10 years than it was a century ago, and since insanity is more often found in the middle or later periods of life, there would be, other things equal, relatively more people so afflicted; better standards of care cause more people to seek institutions for relief in the early stages of the disease; conditions now recognized as mental diseases were passed over previously, and those so afflicted were often classed merely as criminals; the death rate in institutions is lower now, hence the number increases. But it can not be denied that of all of the classes of sick people cared for in hospitals the insane is by far the most numerous. The number of beds provided for the insane is in excess of the combined number of beds provided in all other hospitals in the United States.

The estimated cost of caring for the insane in institutions in the United States for the year 1910 was placed at \$32,804,500, and was stated to be about equal to the amount expended yearly in the construction of the Panama Canal. The annual economic loss to the country as a result of this withdrawal of labor was estimated at \$130,000,000. The burden of caring for the insane was strikingly illustrated by figures showing, for example, that in New York State nearly one-fourth (23 per cent) of the entire annual expenditure of State funds was appropriated last year for the care of the insane. Only a little more (24 per cent) was spent for the support of common schools and the educational department.

The general conclusions relating to the effect of immigration on the prevalence of insanity were stated as follows:

That immigration is an important source of insanity in the United States is shown by the fact that although the foreign born constitute but 14.3 per cent of the general population, the foreign-born insane constitute nearly 30 per cent of the insane in institutions, and this, too, despite the fact that all ages are not represented in the foreign-born population, as in the case of the native born. The wise and humane control of immigration with reference to the exclusion of the insane and mentally defective is a pressing need.

In a chart entitled "The children of mentally defective women" it was stated that—

The British Royal Commission reports that the offspring of mentally defective women are twice as numerous as the offspring of normal women.

A helpless, feeble-minded woman is the prey of not one man but of many men. In the foregoing series 20 women bore 60 children by 38 fathers. Practically all such women became mothers soon after reaching the age of puberty, and most of the children of such women are mentally defective or illegitimate, or both. Of the above 60 children 19 were mentally defective and 28 illegitimate.

The unfortunate birth of such children, their helplessness, their pauperism and consequent ruin, are but part of a continuous series whereby the community is constantly supplied with the elements of degeneracy and crime.

Another chart:

The effect of the mentally defective upon a community: Insane father, feeble-minded mother; 7 children, all mentally deficient; 1 under institutional care, 1 married, 3 at almshouse with mother.

Alcoholic father with imbecile brother; alcoholic mother, tuberculous sister; 8 feeble-minded children, only 1 under institutional care.

Feeble-minded paternal grandmother, neurotic paternal grandfather, alcoholic father, neurotic mother with "queer" sister; 10 children—8 feeble-minded, 2 uncertain; 1 only under institutional care.

The institution at Vineland, N. J., has a record of 237 similar families. Draw your own conclusions as to the effect of such families upon society and community life. It is known that 25 per cent of all criminals are mentally defective.

In sections C and D material illustrating the different types of the nervous system, from the lower animals to that of man, was exhibited. The purpose of this section was to show the "different levels at which the personality is vulnerable, and to illustrate by the life histories of actual cases of mental disease, and to indicate the way in which adjustment can be interfered with by damage to its mechanism." This last point was illustrated by photographs of the brain and nervous system in various diseased conditions.

In this section emphasis was placed on the fact that the fatalistic attitude of the public toward insanity is not justifiable, for many of the causes are avoidable either by special measures or by strict compliance with the laws of general hygiene. The person who has not made some study of insanity, or who has not been informed by those who have made such a study, is inclined to look upon all insane people as if each were afflicted in the same way. There are, however, many varieties of insanity or insanities, each with its characteristic cause and varying in hopefulness or hopelessness accordingly. The statistics presented showed that about 25 per cent of all who are committed to insane hospitals recover and remain well. About the same number, while not completely cured, are able to return to their homes and take some part in active life.

Section E was devoted to the methods and the results of institutional care of the insane and the mentally defective. The crude and horrible methods formerly used to restrain insane people were exhibited and contrasted with the freedom and lack of restraint to-day. An insane person is now treated as a sick person, and not as one possessed of a devil, as was formerly the case. It was stated that—

The Boston Psychopathic Hospital and the Henry Phipps Psychiatric Clinic of Johns Hopkins University are institutions which represent the most humane idea in the care of mental diseases. Institutions of this character break down the last barrier between the treatment of the insane and the treatment of other classes of the sick.

Section F was devoted to the campaign for mental hygiene in general. The recommendation was made by the national committee for mental hygiene that practical aid in mental hygiene should be given by the universities throughout the country by—

(a) The establishment in all universities of departments for the study of the structure and function of the nervous system in the lower animals, so that the investigator may go from the simpler to the more complex phenomena of behavior.

(b) The study of human psychology on a far broader basis than has yet been attempted.

(c) The establishment of departments of mental hygiene, so the natural capacity and trends of students may be determined in order that their mental health may be protected and their efficiency and chances for success increased by helping them to find the place in the world for which they are best adapted.

The committee further recommended that—

1. More attention should be given to the subject of mental diseases in medical schools, in order that the general practitioners may recognize cases of mental disease early and aid in securing treatment for them.

2. Institutions where early cases of insanity or those in danger of developing mental diseases may secure treatment, such as psychopathic hospitals and special wards or pavilions for the insane in connection with general hospitals, should be established in many cities.

3. Improvement of the standards of nursing the insane should be sought by providing opportunities for training nurses and attendants, together with shorter hours, better wages, and better living conditions for these workers.

4. Alcohol and syphilis, as preventable causes of mental disorders, should be attacked vigorously.

5. The relation of heredity to insanity should be carefully studied.

6. The feeble-minded should be segregated in suitable institutions, so that the jails, almshouses, and hospitals for the insane may be relieved of cases not subject to reform or cure, and that the feeble-minded may be delivered from such unsuitable institutions.

7. Backward children in the public schools should be given a careful mental examination by competent examiners, and so should all juvenile delinquents, in order that these classes of children may be given the right kind of work to do and, if possible, be placed in an environment conducive to their greatest usefulness.

8. The relation of crime to insanity should be studied carefully, so that the legal aspects of the problem may be made to conform more closely to its medical aspects.

An outline of the work of the National Committee for Mental Hygiene was set forth on a chart, as follows:

The National Committee for Mental Hygiene aims to serve as a clearing house for the Nation on the subject of mental health, the prevention of nervous and mental disorders, the care and cure of the insane; and aims also to serve as a coordinating agency for all State and local agencies interested in these problems.

Its activities are as follows:

1. The National Committee for Mental Hygiene is gathering reliable data on mental health, the causes and prevention of nervous and mental disorders, and the care and treatment of the insane, and will publish and keep before the public vital facts regarding these subjects.

2. The National Committee for Mental Hygiene is gathering interesting material for exhibits and lectures on mental hygiene and the care and treatment of the insane, so that interested workers in the several States may show the necessity for concerted action in behalf of the insane and the numerous portion of the public which is in danger of developing mental disorder.

3. The National Committee for Mental Hygiene is enlisting the interest and support of the public, so that all States will grant adequate appropriations for the care of the insane and for the proper management of the problem of mental health in their respective communities.

4. The National Committee for Mental Hygiene is enlisting the support of philanthropists who heretofore, because of the absence of a coordinating agency in this field of endeavor, have found it difficult to help the insane. This will hasten the day when psychopathic hospitals, psychiatric clinics in connection with medical schools, and special wards for the treatment of mental diseases in general hospitals will be established throughout the country and make it possible to treat all cases of incipient mental disorders promptly and with full effect.

5. The National Committee for Mental Hygiene has published a document entitled "Summaries of the laws relating to the commitment and care of the insane in the United States," with a view to securing uniformly good laws in all States, and further as a means of raising the standard of care for the insane throughout the country, it being an accepted fact that States with highly developed systems of care and treatment of the insane also have the best and most complete laws on the subject.

6. The National Committee for Mental Hygiene is studying conditions among the insane in the United States, under the terms of a special gift of \$50,000, for the purpose of ameliorating their condition. In order to achieve this result, plans for improvement, for the use of interested workers in given States who desire disinterested advice regarding their local problems, will be furnished upon application.

7. The National Committee for Mental Hygiene will help to organize State societies for mental hygiene and local committees for mental hygiene throughout the country, so that local conditions may be improved in given States by representative groups of people who are vitally interested in the work and best qualified to manage it.

8. The National Committee for Mental Hygiene is studying the extent and character of the instruction given in medical schools in the United States regarding mental diseases, with a view to having such instruction conform to the importance of this subject, so that physicians generally may be able to recognize cases of incipient mental disorder.

9. The National Committee for Mental Hygiene is studying the relation of immigration to the prevalence of mental diseases and defects, with a view to rendering aid in devising wise and humane methods in controlling the immigration of the insane and mentally defective.

The chief objects, as stated and set forth in a placard, are summarized as follows:

To work for the protection of the mental health of the public; to help raise the standard of care for those threatened with mental disorder or actually ill; to promote the study of mental disorders in all their forms and relations, and to disseminate knowledge concerning their causes, treatment, and prevention. To obtain from every source reliable data regarding conditions and methods of dealing with mental disorders; to enlist the aid of the Federal Government, so far as it may seem desirable; to coordinate existing agencies and help organize in each State in the Union an allied but independent society for mental hygiene, similar to the existing Connecticut Society for Mental Hygiene.

The committee on mental hygiene of the New York State Charities Aid Association offered an interesting exhibition by charts and maps illustrating their method of prevention.

The importance of mental hygiene was emphasized in a series of charts setting forth, among other statements, the following:

Mental hygiene is the study of individuals with a view to determining their natural capacity and trends, then of assisting them first to find, and then to retain, a place in the world for which they are adapted.

A nation's greatness depends upon the efficiency of its citizens; personal efficiency depends upon a healthy brain and nervous system and the organization of sound habits.

Our conduct and thoughts depend upon the capacity of our nervous system. The brain is the individual—by it man lives, moves, and has his being. Education is a process of training the brain and nervous system by study and discipline. The aim of education should be to develop the capacity of these organs to the utmost.

If a training in pedagogics gave teachers a clearer and more practical insight into actual life, as well as some appreciation of the beginning pathological tendencies of humanity, many failures would be avoided and many difficulties would be overcome.

—KRAFT-EBING.

In the section on the prevention of insanity and mental defectives the Minnesota School for Feeble-Minded and Colony for Epileptics, at Faribault, had an interesting exhibit. A large map was exhibited showing the location of the village community and colonies, consisting of training school, custodial department for women, hospitals, kitchens, colonies for boys, etc. Along with this were numerous photographs of the buildings, grounds, the workshops, library, schools, gymnasiums, recreation halls, etc., showing how much care is being bestowed upon the unfortunates. Here on a farm of 1,038 acres defectives and epileptics are really given a better opportunity for normal living than is very often given to the healthful and more fortunate children of our Nation. From their school work a rather unique exhibit was shown. One of these illustrated the relation of mental age to ability in sewing. For example the work of the normal child of 4 years is taken as a basis, and that of all the defective girls who showed about the same amount of skill and talent, regardless of years, was classified with this. For example, the sewing of a girl of 19 was of such a nature as to make it plain that it is impossible for her to do better handwork than a normal child of 4 years. This line of illustration is used up to the mental age of 8. It is a rather new suggestion and offers opportunity, it seems to me, for a new, even if crude, form of mental measurement. Naturally here, as in all instances where the measurement of the intelligence is undertaken, great care and scientific carefulness must be observed.

In a pamphlet distributed in connection with their exhibit the committee on mental hygiene of the New York Charities' Aid Association sought to answer in a brief way this question: Why should any-

one go insane? Some parts of the answer to this question are here reproduced and deserve careful consideration by all people:

CAUSES OF INSANITY.

1. *Immoral living.*—One kind of insanity is known popularly as “softening of the brain.” It is known scientifically as general paralysis, or paresis. It is incurable by any means now known to the medical profession. * * * The very substance of the brain becomes changed. They usually live but a few years. It is now agreed by the medical profession that this disease is caused by an earlier disease known as syphilis. * * * If self-respect, the desire for the good opinion of others, the influence of religious training, and the attractions of home life are not sufficient to prevent this kind of wrong doing, the danger of contracting a disease which may result in incurable insanity should be sufficient.

The number of patients having paresis or “softening of the brain” admitted to State hospitals during the year ending September 30, 1910, was 600 men, or 17 per cent of all men admitted, and 263 women, 8 per cent of all women admitted.

2. *Alcohol and other poisons.*—Another group of mental diseases are due directly to the habitual use of alcohol. Alcoholic insanity may be brought on by the regular use of alcohol, even in “moderate” quantities not producing intoxication. The close relation between alcohol and insanity has only recently been fully realized. * * * Fully 30 per cent of the men and 10 per cent of the women admitted to the State hospitals are suffering from conditions due directly or indirectly to alcohol. So marked is the effect of alcohol upon the brain and the nerve tissue that it helps to bring about a number of mental breakdowns in addition to the alcoholic insanities.

In this day of keen competition every man needs the highest possible development of his mental capacities. Not only is the highest mental development impossible in the presence of the continued use of alcohol, but impairment of the mental faculties is likely to follow. The children of those addicted to alcohol often start in life with morbid tendencies or mental defects.

Other poisons, such as opium, morphine, and cocaine, which, with alcohol, are the principal parts of many patent remedies, often weaken the mental powers and produce insanity.

3. *Physical diseases.*—Some mental breakdowns may be traced to the effects of other physical diseases. Typhoid fever, influenza, diphtheria, and some other diseases often so poison the system that, for some time after the disease itself has left, the regular functions of the body are seriously interfered with.

Overwork is often spoken of as a cause of insanity. This is not correct. Hard work alone rarely causes a nervous breakdown. It only becomes a menace to health when associated with worry and loss of sleep or causes mentioned under other headings.

4. *Mental habits.*—Aside from physical causes there are also mental causes. They are the most important causes of some forms of insanity. The healthy state of mind is one of satisfaction with life. This does not depend so much upon our surroundings or how much money we have or how many troubles come to us, as upon the way in which we train ourselves to deal with difficulties and troubles. * * * Mental health is as important as physical health. The average person little realizes the danger of brooding over slights, injuries, disappointments, or misfortunes, or of lack of frankness, or of an unnatural attitude toward his fellow men, shown by unusual sensitiveness or marked suspicion. Yet all these unwholesome and painful trains of thought may, if persisted in and unrelieved by healthy interests and activities, tend toward insanity.

Wholesome work, relieved by periods of rest and simple pleasures, and an interest in the affairs of others are important preventives of unwholesome ways of thinking. * * *

Our remedies oft in ourselves do lie,
Which we ascribe to heaven.

—SHAKESPEARE.

Heredity.—Most persons think that insanity may be directly inherited. This belief is undoubtedly wrong. One may inherit a greater or less tendency toward insanity. Mental instability may be inherited just as weak constitutions may be inherited. * * * The most important fact in heredity is that the vast majority of ancestors of every individual were normal. Heredity tends, therefore, rather more strongly toward health than toward disease.

The fact that heredity plays a part in the causation of insanity should create a public conscience regarding marriage. Marriages should not be contracted by two persons who have insanity or feeble-mindedness in their immediate families without seeking and following the advice of a competent physician.

SEX HYGIENE.

The exhibit which attracted by far more attention than any other presented was that illustrating the effects of venereal diseases and the work and propaganda of the American Society of Sanitary and Moral Prophylaxis. The section on sex hygiene, while described by one speaker as "the hall of horrors," will probably have a more definite and far-reaching educational effect than any other part of the exhibit. In addition to an extensive display of wax models, drawings, charts, and photographs, a dark room in which lectures, illustrated by lantern slides and moving pictures, were given, was in almost constant use throughout the whole exhibition. The great interest displayed in these lectures and the information disseminated in connection with this exhibit furnished striking evidence that at last the awful curse of these diseases is emerging from its veiled secrecy and that the time is rapidly approaching when the generations unborn will be protected from their baneful results.

In the outlines presented, setting forth the general educational propaganda, emphasis was placed on the possibilities of teaching sex hygiene successfully, and with as few complications as possible. The following is the program suggested:

I. The subject of sex hygiene must be taught as one intimately and obviously related to other subjects in the curriculum, such as natural history, biology, etc. To detach the subject of sex, and teach it to young children as an unrelated course, not only is illogical and unscientific, but gives it undue prominence in the childish mind.

Instruction must be given in the earliest grades as a part of nature work, and should be carried through the entire social period, its complexity increasing with the growing demands of the child. The child should be encouraged to ask questions and make its own observations.

It naturally follows that the teaching should be accompanied by no more sentimentality or vagueness than any other natural history subject.

II. At an early age a systematic attempt should be made to inculcate in the child a great respect for beauty and for the potential possibilities of the human body, the profound importance of habits, both physical and psychological, and the necessity for a clean, well-developed body for efficient manhood and womanhood.

By the time the child attains puberty, he or she should have a clear general knowledge of the plan of reproduction, gained almost wholly from a study of comparative anatomy in an evolutionary form, from the lowest unicellular type to the complex vertebrates. There should also have been gained by this time a good working vocabulary.

III. Up to the age of puberty it would seem best that sex hygiene should be taught by the regular class teacher, if fitted by nature for the work. Through her personal knowledge of the children, she should be able to distinguish the most precocious, and by aid of the medical inspector or, better, the parents, give the special instruction they demand. She should also be able to distinguish those children who, by reason of heredity or environment, form a species of degenerates, one of whom may exert a most demoralizing influence upon the sex education of an entire classroom. This duty would also obviously necessitate very careful training on the part of the teacher. Such training should, therefore, be an essential part of every normal school and university.

IV. Special care should be given to the peculiar nervous and mental phenomena of the period of puberty. The cooperation of the medical inspector is here most important. Parents should be especially warned of the significance and dangers of this most important phase of all life.

At this time a course in citizenship should be inaugurated, and an attempt made to develop an acute sense of the social and race consciousness, with the idea of preparing the child for an understanding of the sociological significance of sex.

V. Throughout adolescence the youth is particularly sensitive to psychical and idealistic appeal. In this season, during high school and boarding school, the study of eugenics and heredity should be introduced, special stress being laid upon the responsibility of the present generation for the next, and upon the rights of the unborn. The relation of sex to all creative art, such as painting, music, and poetry, should also be made clear.

At the same time, the youth, male or female, is old enough now, in the latter half of his high-school course, to assimilate a more technical study of the physiology of reproduction, the dangers of precocity along certain lines, of masturbation, and of the venereal diseases. To both boys and girls should be given a thorough course in the physiology and hygiene of menstruation. All of this advanced instruction would gain authority and dignity if given by well-trained men and women of the medical profession.

VI. In the attempt, however intelligent, to deal with the sex education of children the teacher can not hope to meet with the desired results unless the parents will cooperate with the schools.

To convince the parents of the necessity of such instruction, every means should be taken to arouse them to an appreciation of existing conditions.

To this end, prepared lectures and demonstrations should be given them through the school centers, through parents' associations, and through women's clubs, where prepared literature may also be distributed.

The detailed outlines presented, setting forth a course of work for teaching sex hygiene, were in part as follows:

EARLY ADOLESCENCE (AGE 12-16 YEARS).

I. Nature Study and Biology:

1. Further study of reproduction in plants.
2. Reproduction in the lower forms of animal life.
 - (a) Species in which the care of the young is absent.
 - (b) Those in which love and care of the offspring is evident.
 - (c) Significance of parental love in animal life.
 - (d) The mating of animals and its relation to the care of the young.
 - (e) The higher the animal in scale of life, the greater the helplessness at birth and the more love and care needed.
 - (f) The human body the most helpless of all animals, needing the greatest love and the longest parental protection and care.

II. Adolescent Love:

1. Its influence, if properly directed and controlled, can not fail of good.
2. It should be studied as portrayed in the works of the great literary artists in poetry and the novel.
3. The feeling of chivalry and honor and respect for women is to be zealously cultivated. Biographies of great women and knightly great men should be read by boys and girls.
4. Emphasis must be laid upon the responsibility of brothers and sisters for one another's welfare; also by the boys' obligation to protect other boys' sisters.
5. Expression of adolescent sex love in the form of enthusiasm for art, for altruistic social activities, for favorite intellectual pursuits, are to be encouraged along common-sense lines.

III. Personal Hygiene:

Hygiene and care of the reproductive organs and sex function as sacred obligations.

1. The relation of sex control to the health of the individual and of his or her offspring.
2. The danger of abuse of the sex function, and the results upon the nervous system, including the brain and spinal cord.
3. The importance of properly regulated food, of exercise and play, of physical fatigue (not exhaustion), of mental occupation, of early rising, of cold bathing, of sleeping in a cold room as means of control of sex feelings.
4. The influence of drugs (alcohol, tobacco, opium, cocaine) upon laws of sex control.
5. The significance of sex in human life in the light of plant and animal development as already studied.

IV. Amusements:

1. A careful choice of social pleasures and their environment is essential to moral health.
2. The wholesome meeting of boys and girls is the only safe preliminary basis for mature friendships and marriages.
3. Suggestive shows, posters, and books, also saloons and dance halls, go far toward nullifying the slipshod and careless home efforts.
4. Suggestive posters and pictures make the work of the unhygienic book, theater, saloon, and dance hall very easy.

LATER ADOLESCENCE (AGE 16-25 YEARS).

I. Biology:

1. A further study of the science of reproduction and its application to human life. Human embryology and heredity.
2. Animal breeding and its influence in the production of superior qualities in the animals.

I. Biology—Continued.

3. Human inheritance and its bearing on family histories.

(a) The inevitable result of the marriage of defectives.

(b) The inevitable result of the marriage of the most fit.

II. Sex Hygiene:

1. The relation of individual chastity to the moral and physical health of the individual and his or her unborn child.

2. The social diseases: Their nature, contagiousness, far-reaching effects, and their danger to the innocent.

III. Sociology:

The ultimate effects of unfair social relations, of the double standard of moral and physical health for the two sexes, of prostitution, and of the diseases consequent upon immorality.

THE METHODS OF TEACHING SEX HYGIENE.

PERIOD OF PARENTHOOD.

Through an intelligent use of the family physician as the natural instructor of the home in sex matters. The feeling of responsibility will ennoble and furnish a new sanity and health to home happiness and morals.

Through sane literature on the subject of sex hygiene, meaning by this term the healthy and reverent use of the sex function with a view to the future welfare of the individual and of his or her posterity.

Through schools yet to be established for the deliberate, intelligent training of parents and school teachers.

Through traveling exhibits, such as are possible through the instrumentality of the State societies of social hygiene or of the American Federation for Sex Hygiene.

Through lectures by physicians and by others fitted by nature and by training to teach.

Through deliberate measures on the part of heretofore negligent municipal and Federal authorities to awaken a slumbering people to the imminence of the danger and the means of prevention and cure.

Through a realization of the fact that the sex function is a sacred trust, not a play-thing; a talent for reverent use by loyal citizens, not a means to the undermining of the health and life of the people.

EXPERIMENTAL PSYCHOLOGY.

The Cornell exhibit of experimental psychology.—The Cornell University exhibit in experimental psychology contained a quantity of the newer apparatus that has been developed in this increasingly significant field of knowledge, being especially rich in apparatus for testing intelligence. During the exhibit the Binet test, with certain of the recent modifications, was applied to children, particularly for the purpose of illustrating a class of experiments which it is intended to follow out on a wider scale with the hope that they will ultimately lead to important conclusions.

The relation of sense discrimination to intelligence was one of the subjects in which it was possible to make some experiments of interest. For this purpose there was at hand the following psychological apparatus: The Whipple discrimination-of-brightness apparatus—the ingenious dark-room box that operates by transmitted light; another piece of Whipple apparatus working on the principle of reflected

light; the pressure-pain balance, which ascertains the point where mere pressure becomes pain; the sensory capacity tapping test; the warmth tester, wherein the influence of developed imagination is brought into play; etc. It is believed that ultimately tests based on experiments with this and similar apparatus will show more exact connection than is at present established between sense discrimination and intelligence.

In the Cornell booth there were naturally a number of exhibits of more definite popular interest, yet possessing educational value as measures of intelligence. Notable among these were the various "illusions": The size-weight illusion; the relation of size, form, and distance; and a number of the less familiar line illusions.

APPENDIX.

INSTRUCTIONS RELATING TO TUBERCULOSIS, DISTRIBUTED BY THE DEPARTMENT OF HEALTH, NEW YORK CITY.¹

How to keep from getting consumption.—Keep as well as possible, for the healthier your body the harder for the germs of tuberculosis to grow therein. To keep healthy, observe the following rules:

Avoid living, studying, or sleeping in rooms where there is no fresh air. Fresh air and sunlight are nature's best disinfectants and kill tubercle bacilli and other germs causing disease; so have as much in your room as possible.

Do not live in dusty air; keep the rooms clean, but do not sweep or dust with dry brooms or cloths. Get rid of dust by cleaning with damp cloths and mops.

Obtain fresh air by keeping one window in your bedroom partly open all night long, and air the room two or three times a day.

Always wash your hands before eating, and do not put your fingers or pencils in your mouth or candy or chewing gum other persons have used.

Take a warm bath with soap at least once a week.

Do not neglect a cold or a cough, but go to a doctor or dispensary.

How to get well if you have consumption.—If you or anyone in your family have tuberculosis, you should obey the following general rules if you wish to get well:

Money spent on patent medicines or advertised consumption cures is wasted. Go to a doctor or dispensary.

Do not drink whiskey or alcohol in any form.

Do not sleep in the same bed with anyone else and, if possible, not in the same room.

Good food, fresh air, and rest are the best medicines for consumption.

Your windows should be kept open winter and summer, day and night.

How to avoid giving consumption to others.—Many grown people and children have pulmonary tuberculosis or consumption without knowing it and can give it to others. Therefore every person, even if healthy, should observe the following rules:

Do not spit on the sidewalks, playgrounds, or on the floor or hallways of your home or school. It spreads disease and is dangerous, indecent, and against the law.

Always spit into a paper cup or into paper napkins or old cloths. These should not be used a second time, but should be at once put into a paper bag, which should later be burned with its contents. Pocket flasks of metal or glass may also be used. If you have no cup or napkin, spit in the gutter. At home use a spittoon half filled with water.

Do not cough or sneeze without holding a handkerchief or your hand over your mouth or nose.

A person who has pulmonary tuberculosis or consumption is not dangerous to those with whom he lives and works if he sleeps alone and is careful and clean.

Rooms which have been occupied by consumptives should be thoroughly cleaned, scrubbed, and whitewashed, painted, or papered before they are again occupied. Carpets, rugs, bedding, etc., from rooms which have been occupied by consumptives, should be disinfected. Such articles, if the department of health be notified, will be sent for, disinfected, and returned to the owner free of charge, or, if he so desires, they will be destroyed.

¹ See page 18.

When consumptives move, the department of health should be notified.

General advice to those affected.—Be hopeful and cheerful, for your disease can be cured, although it may take some time.

Carefully obey your physician's instructions. You may improve steadily for months, and lose it all by carelessness. Improvement does not mean cure, therefore continue treatment as long as you are directed to do so.

Do not talk to anyone about your disease, except your physician or nurse.

Do not listen to tales of other patients or follow their suggestions or those of others concerning the treatment of your disease.

Report to your doctor or clinic when directed. Report immediately if you have fever, indigestion, diarrhea, constipation, pain, increased cough, or reddish expectoration. If you are too ill to come, send word.

If you have a hemorrhage do not become alarmed; keep quiet and notify your doctor or clinic.

In the treatment of your disease fresh air, good food, and a proper mode of life are more important than medicines. Take no medicine that is not ordered by your physician.

If you are offered admission to a sanatorium, accept at once.

Advise any of your family, friends, or neighbors who have a persistent cough and have no doctor to go to the nearest tuberculosis clinic.

Cough and expectoration.—Try to control your cough as much as possible. You should only cough when you have to expectorate.

Cover your mouth with your handkerchief or hand when you have to cough.

Your expectoration or spit contains germs and is dangerous to yourself, your family, and your neighbors when not properly taken care of.

When in the house always spit into a spittoon half full of water; empty the vessel in the closet at least once a day and rinse it with boiling water.

It is much better, however, to use paper handkerchiefs, which can be burned after use. The nurses of the department of health will supply these.

When outdoors, spit in one of the paper handkerchiefs furnished and put it in the paper bag, burning bag and all on your return home.

If you should be outdoors and have nothing with you to receive your expectoration, spit into the gutter. *Never spit on the sidewalk.* Never swallow your expectoration.

Pure fresh air.—Stay in the open air as much as you can; if possible, in the parks, woods, or fields. Do not be afraid of cold water. Avoid drafts, dampness, dust, and smoke. Dust and smoke are worse for you than rain and snow. Don't be afraid of night air; it is not harmful and contains less dust than day air.

Never sleep or stay in a hot or close room. Keep it always well ventilated.

Keep at least one window open in your bedroom at night.

Have a room to yourself, if possible; if not, be sure to have your own bed.

When indoors, remain in the sunniest and best ventilated room. The room should preferably be without carpets; small rugs may be allowed.

No dusting or cleaning should be done while the patient is in the room.

Cleaning should be done only with mops or moist rags.

Draperies, velvet furniture, and dust-catching materials should not be in the patient's room.

Food and feeding.—Take a half hour's rest on the bed or the reclining chair before and after the principal meals.

Avoid eating when bodily or mentally tired, or when in a state of nervous excitement.

Eat plenty of good and wholesome food. Besides your regular meals take a quart of milk daily, from three to six fresh eggs, and plenty of butter and sugar, provided they do not disagree with you.

Eat slowly; chew your food well; avoid anything which causes indigestion.

See that your eating utensils are thoroughly washed after use.

Do not smoke and do not drink liquor, wine, or beer, except by special permission; but drink plenty of good, pure water between meal times.

Always wash your hands thoroughly before eating, and clean your finger nails.

Rest.—Avoid all unnecessary exertion. Never run; never lift heavy weights. Never take any kind of walking, breathing, or other exercises when you are tired, nor take them to the extent of getting tired. The kind and amount of exercise which you should take will be prescribed for you by your physician.

Go to bed early and sleep at least eight hours.

If you have to work, take every chance to rest that you can when off duty.

When the physician prescribes a rest cure, either in bed or on a reclining chair, it must be carried out, either on the veranda, fire escape, roof, or in front of an open window.

Clothing.—Wear underwear according to the season. Don't wear chest protectors.

Dress comfortably and sensibly, and avoid garments constricting neck and chest.

Keep your feet dry and warm. Wear overshoes in snowy or damp weather.

Personal hygiene.—Keep your body clean and take a warm bath with soap once a week; take cold douches or cold baths according to the directions of your physician.

Avoid all bad habits.

Keep your teeth in good condition by brushing them regularly.

See that your bowels move regularly every day.

Shave your beard or wear it closely clipped. Do not kiss anyone.

Handle the soiled personal and bed linen, especially handkerchiefs, as little as possible in the dry state. When soiled, place these articles in water until ready to be washed.

Don't waste time or money on patent medicines or advertised cures for your disease; they are worthless.

Sweeping and dusting.—In sweeping a room raise as little dust as possible, because dust, when breathed in, irritates the nose and throat and often sets up catarrh. Some of the dust breathed reaches the lungs, making portions of them black and useless.

If the dust breathed contains the germs of tuberculosis or consumption—tubercle bacilli—which come from persons who have pulmonary tuberculosis spitting on the floors, the risk is run of getting the disease. If the sick person uses proper spit cups and is careful to hold a handkerchief over the mouth when coughing or sneezing, so as not to scatter spittle about in the air, the risk to others who live in the same rooms of getting the disease is inconsiderable.

Before sweeping bare floors, sprinkle moist sawdust on the floor. When the room is carpeted, wet a newspaper, tear it into small scraps and scatter these over the carpet. In sweeping, brush these scraps of paper along with the broom, and they will catch most of the dust and hold it fast, just as the sawdust does on bare floors. Do not have either the paper or the sawdust dripping wet, only moist.

In dusting a room, do not use a feather duster or dry cloths, because these do not remove the dust from the room, but only brush it into the air.

Do all dusting with slightly moistened cloths and rinse them out in water when finished.

In rooms with bare floors (in houses, stores, shops, schoolrooms, etc.), all dust can be easily removed after it has settled, by using a mop which has been wrung out so as to be only moist, not dripping wet.

REPORT OF DISINFECTION IN A PRIVATE HOUSE.

This certifies that the premises named herein have been fumigated, as noted, and in compliance with the regulations mentioned below.

NEW YORK, July 13, 1911.

Name of patient, *John Smith*. Age, *25*. Disease, *consumption*. Duration of illness, *6 months*. Residence, *1850 University Place*. Number of rooms disinfected, *2*. Number cubic feet, *3,000*. Disinfectant used: *Formalin, 18 ounces; Sulphur, pounds. Paraform, grains*. Time room left exposed to disinfectant, *6 hours*. Disinfecting solution employed, *Carbolic, 2 per cent*.

Name, *James Brown, M. D.*,

Residence, *933 East First Street*.

In every case of disinfection the following regulations must be complied with:

All cracks or crevices in rooms to be disinfected must be sealed or calked, to prevent the escape of the disinfectant.

The following disinfectants may be used in the quantities named:

Sulphur, 4 pounds for every 1,000 cubic feet, 8 hours' exposure.

Formalin, 6 ounces for every 1,000 cubic feet, 4 hours' exposure.

Paraform, 1 grain to every cubic foot, 6 hours' exposure.

Carbolic acid, 2 per cent to 5 per cent solution, and bichloride of mercury, 1-1000, may be used for disinfecting solutions.

PART II. ABSTRACTS OF PAPERS BEARING ON EDUCATION.

RINGWORM IN THE SCHOOLS OF MEXICO.

Dr. MANUEL URIBE Y TRONCOSO.

Spanish Hospital, Mexico City, Mexico.

During the school year 1910-11, 2,784 pupils were separated from the public schools of the City of Mexico on account of ringworm. With an attendance of 34,168, this gives 8.2 per cent of ringworm (tinea) patients. In the municipalities outside of the federal district 365 scholars were excluded from the schools, which gives an average attendance of 23,265 scholars, with 1.5 per cent of tinea patients. The disease is widely disseminated in the schools. Considering the great number of children with tinea and the imperative necessity of keeping them out of school so as to prevent the spread of the disease, it was decided to make use of the X-ray treatment, which reduces the duration of the old methods of depilation by tweezers from two years to two or three months.

Two special schools were established for children affected with tinea, each with a capacity of about 300 scholars, and both located in the building occupied by the medical department.

In this manner the sick children are constantly under observation, treatments are given regularly, and the progress of the depilation watched. Moreover, the children, being enrolled for the school year in their respective schools, do not lose any time, and the treatment as well as the usual lessons are systematically pursued.

The number of children enrolled in the school from January to March, 1911, and in the two schools for boys and girls from July, 1911, until February, 1912, was as follows:

Enrolled boys.....	284
Enrolled girls.....	216
Individual exposures to the X rays.....	280
Total number of exposures.....	1,165
Children upon whom depilation took place.....	132

SCHOOL DISINFECTION.

Dr. J. T. AINSLEE WALKER.

New York City.

The presence of a certain proportion of infectious children in the school is admittedly unavoidable; the only apparently available weapon of defense lies in the everyday use of spray solutions of

disinfectants to be sprinkled upon walls and desks and floors of schoolrooms. In addition to recognized cases of diphtheria, measles, scarlet fever, and whooping cough in the schools, there always is a certain percentage of children who are merely carriers of disease germs without themselves being affected by the microorganisms which find lodgment within their bodies. These children are even a greater menace to their classmates than are the children who actually show visible symptoms of disease, because in the bacillus carriers the presence of the germ danger can not be recognized. Disinfectants used in sprays are much more effective than disinfectant gases, because the former lay the dust in the rooms, which, after all, constitutes the greatest carrier of disease germs from child to child.

Having regard to the constant recurrence of epidemics among school children and to the failure of all existing preventive measures, routine disinfection of schoolrooms should be given a thorough trial. In the absence of this precautionary measure, the infective material diffused by children in the unrecognized stages of certain infectious diseases must accumulate on the schoolroom floors and constitute a standing menace to the health of pupils and teachers alike. Conceding that the major part of school infection is due to direct contact, a certain proportion is also due to the inhalation of bacilliferous dust.

Routine disinfection was introduced into the elementary schools of Great Britain in 1907. An experiment extending over a year was carried out by the Buckinghamshire education committee with a view to obtaining reliable data. The result showed an appreciable superiority in the attendance at the disinfected schools over those at the nondisinfected schools.

For school disinfection, the liquid-spray method is preferable to that of fumigation, for three reasons. It costs less; it insures actual contact between the disinfectant and the infected material; and it prevents dust from rising. At the close of each day the classroom floors should be thoroughly moistened with an efficient germicidal solution, and the desks and seats wiped with a cloth wrung out of the same preparation. Once a week the process should be extended to include the walls to a height of 6 or 7 feet above the ground, and once a quarter the classrooms should be thoroughly sprayed from floor to ceiling.

CAMPAIGN AGAINST CONTAGIOUS DISEASES OF CHILDREN.

DR. WALTHER EWALD.

Academy of Social and Commercial Science, Frankfurt, Germany.

Contagious diseases have either yielded to modern hygiene or have at least been greatly affected, excepting infectious diseases of children, which in part only are true children's diseases. The terrible effect

of contagious diseases of children is not merely disclosed by mortality statistics, but in a general decline of young people. The battle can not be the same as in other infectious diseases where we have to proceed against bacterial components. Exciting and disseminating agents are rarely found in children's diseases.

Among the characteristics of the four diseases, measles, scarlet fever, diphtheria, and whooping cough, are some of great importance, because they give hints how best to combat the disease. From an inquiry into morbidity and mortality by age periods we have learned that whooping cough is most prevalent and registers the highest mortality among infants, and that the other diseases appear most commonly between the ages of 2 and 5. If then we are to combat mortality in children's diseases, we must consider the fact that diseases intrinsically not so very dangerous may result fatally when they attack very young children, where rachitis exists and when they occur among the poor and especially in insanitary surroundings. It is against these conditions that we must direct our energies; we must isolate very young children, insist upon hygienic living quarters, and provide for proper feeding of infants. Either the afflicted or the unafflicted children may be isolated, and it is said that both measures have been resorted to in scarlet fever. It should perhaps be the duty of the authorities to provide living quarters for the healthy but suspected children. In diphtheria, antitoxin reduces mortality. All diseases should as far as possible be under medical treatment. In order to combat the diseases themselves special measures are necessary. An efficient agency for combating diseases might result from an organized special force of caretakers by keeping a record of all cases of sickness occurring at school. Such cases should be investigated and a physician consulted, and in case of necessity, brothers and sisters should be guarded against contagion. This method of protection might be further extended in connection with medical inspection of schools. In view of the large number of fatalities resulting from contagious diseases of children, systematic measures are necessary.

MANAGEMENT OF TUBERCULOSIS AMONG SCHOOL CHILDREN.

DR. ARTHUR T. CABOT.

Boston, Mass. (Died November 4, 1912.)

Proper measures for the prevention and control of tuberculosis among school children should look not only to the protection of children during their school life and to the cure of those that have active tuberculosis, but should aim at the education of all children in the essential facts of hygiene with, as far as possible, the cultivation of habits of living which will protect them later in life.

The plan of caring for feeble, anemic, and under-nourished children (of the class from which so many tuberculous children later develop) in open-air rooms, or indeed out of doors, with short hours of work and with extra feeding, has been so often tried and the results have been so satisfactory in improving the health and increasing the power of work, that the open-air treatment of ailing children is being more and more widely adopted. The benefits in health derived from this school work in the open air are so evident that it is hoped that it will be more and more supplied to the healthy as well as to the sick. Such provisions will meet the needs of all but the open cases of tuberculosis. Children with open, declared tuberculosis should be separated from other school children and should be constantly under close medical supervision. For them the recovery of their health is of the first importance and their schooling is of secondary consideration. Well-to-do parents can give their children proper care at home with such schooling as may be wise, but for the children of parents who can not afford this special care, some public provision must be made by which these children may be cared for and kept apart from other nontuberculous children. Two ways have been devised for accomplishing this: (1) Hospitals; (2) hospital schools.

Isolation hospitals would naturally give the most complete segregation of these children, but unfortunately only a small proportion of the parents are willing to have their children go to a hospital. The result is that in a community where only hospital accommodation is provided, the greater part of the tuberculous children go to the public schools, or when too sick for that they stay at home, spreading the infection through their family and friends. The hospital school affords less complete isolation than a hospital, but with a proper corps of nurses who follow the children to their homes and teach the parents necessary preventive measures, much in the way of prevention may be accomplished.

The school has the great advantage that the parents are willing to send their children to it. The nurses connected with the school are able to follow the children to their homes and so extend the hygienic teaching to the parents. Upon the whole, therefore, the hospital school is the best means yet devised for caring for the already tuberculous children.

STUDIES IN THE RELATION OF PHYSICAL INABILITY AND MENTAL DEFICIENCY TO THE BODY SOCIAL.

DR. ISABELLE T. SMART,

Department of Education, New York City.

The studies cover personal examinations of children reported by school principals and teachers as mentally defective and in urgent need of specialized training. Interesting data have been gained by

study of the nationality of the various groups. Heredity and environment are frequently evidenced in physical weaknesses as well as in mental defect. Alcoholism in parents produces stock degeneracy, both physical and mental. Sequelæ of many of the contagious diseases of childhood have a marked influence on the physical and mental well-being of the child.

The facts presented show the need of:

1. Greater latitude in the arrangement of school curriculum.
2. Greater scope in, and application of, school hygiene.
3. The need of an increased and more comprehensive propaganda in the instruction of mothers and fathers in the hygiene of daily life.
4. The absolute necessity of more school clinics and more hospital clinics arranged at hours to suit the needs of the school child, instead of, as at the present, during the hours of the school day.
5. The urgent need of after-care committees to guard and protect, in so far as possible, the children who suffer in any degree from mental defect.
6. The necessity for legislation to meet the present needs in the proper care of mental defectives and to prevent any reproduction of their kind.
7. The urgent necessity of the building of more colonies, in all our States, for the permanent care of aments.

EDUCATION OF IMMIGRANTS IN SCHOOL.

DR. WILLIAM E. CHANCELLOR,

South Norwalk, Conn.

The relation of teacher and pupil with special reference to the education of immigrants in American public schools was presented. The observation of children of many races and nations, a detailed study of 1,500 cases out of 4,000 in all, and tests covering 40 points, mostly scholastic, but some physiological, seem to indicate the following conclusions which are submitted tentatively:

Conclusions: Brachycephaly, mesocephaly, and dolichocephaly in its two forms—Mediterranean and Teutonic—each has its definite temperamental meaning.

Certain races are precocious, others are normal or average, and still others are altricious—each of these conditions makes a temperamental condition as its phase or result.

In dealing with immigrants not yet familiar with American life and often not speaking the English tongue, a proper relation of temperaments of pupils and teacher is far more important than elsewhere. The school for immigrants becomes mainly an atmosphere of social feeling.

Muscular-motor young women seem to secure the best results in classes with great varieties of the foreign born.

Women of the same nationality with the prevailing nationality of the class come as second choice.

A certain highly sympathetic yet not excessively intellectual race, the Irish, and they of the female sex, bridge the gulf between the foreign child and the world that he must learn.

The work is concerned mostly with Italians, Hungarians, and Russian Jews, in kindergartens and primary classes, and seems to indicate grave errors in the careless practice of the times. The great business of these grades is to readjust the reactions to environment, to train in new and far more complicated habits than the ancestry ever achieved, and to bring into sympathetic relations new and often resented ideas. Thus certain races resent the idea of the finer courtesies to women, even to their own teachers, and often to their own mothers and sisters. Different races, because of precocity or altricity, must be handled very differently in inculcating such ideas. In short, education is individual, and this has a far deeper meaning than current schooling undertakes to express. Race temperament is one clue.

SERVICE OF MEDICAL INSPECTION OF SCHOOLS TO THE TEACHER.

Dr. HELEN MACMURCHY,

Toronto, Canada.

Organization.—Medical inspection of schools tends to better organization and so increases the comfort and efficiency of the teacher and protects her from infection.

New interest.—Medical inspection widens the teacher's horizon and brings the schoolroom into the sphere of interest of modern preventive medicine. The average school child may be made a sanitary reformer and the teacher is the only one who can do it.

Difficulties of the teacher.—If the pupil can not hear the teacher or see distinctly the words, figures, etc., referred to by the teacher, then the efforts which should help the child are partly or wholly lost, and the teacher's work is rendered harder and less fruitful. Medical inspection, by ascertaining the condition of the general health, eyes, ears, etc., and leading to the cure of any defects and diseases, helps the teacher to do the work of the classroom.

The teacher often feels that something must be wrong with the child, but either does not know what it is or fears that any attempt to direct the parents' attention to the defect will cause unpleasantness, or at best will not remedy the trouble. The medical inspector here becomes the teacher's helper, because the school physician can

not only diagnose what is wrong, but has the authority to cause it to be set right.

Mentally deficient children.—These pupils are the source of much difficulty to the teacher, often causing disorder in the class. Medical inspectors should remove these children to special classes, to their own benefit and to the great relief of all concerned.

The child as a human being.—Medical inspection of schools, dealing with each child personally, tends to impress on us the individuality of each child, and directs attention to his endowments of strength, special senses, etc. We are always trying to deal with human beings as soldiers, lawyers, children, women, Chinamen, or something less than human beings. The man or woman who is dealing with human beings as such (e. g., the teacher) is doing the highest kind of work.

The teacher's own health.—The health of the teacher suffers chiefly from—(1) Impure air and infection. Diseases such as common colds, pneumonia, tuberculosis. (2) Eyestrain, caused by poor lighting, etc. (3) Nervous strain, caused by constant demands on the will power, patience, self-control, association with immature minds, etc. The dignity of the teaching profession is increased by the fact that by the law of the country one of the other learned professions has been called to the teacher's aid and authorized to use modern, scientific methods to prevent school infection, to improve schoolroom hygiene, schoolroom habits, ventilation, lighting, heating, cleaning, and the general morale of the classroom. Medical inspection of schools may be expected to improve the health of the teacher.

FOLLOW-UP SYSTEM IN MEDICAL INSPECTION.

Dr. THOMAS A. STOREY,

College of the City of New York, New York City.

In the department of work under the author's supervision, an attempt has been made to secure a method of instruction in hygiene which will develop permanent health habits in the individual. Medical inspection becomes a part of a method of securing information concerning the hygienic needs of the individual, and a basis on which the individual may be given advice bearing upon his personal health problems.

The important feature in the plan lies in the method of following up instructions to the individual. The percentage of parents that refused to secure treatment for their children during the year ending June 1, 1911, was seven-tenths of 1 per cent, and for the year ending June, 1912, eight-tenths of 1 per cent.

An outline of the routine involved in following up this instructional advice is given. A card-index system is employed and a "conference

card" is made out and filed; another card is given to the pupil, files are gone over every day or two, and cases followed up. The success of this "follow-up" system during the year ending June 1, 1912, justifies the following conclusions:

First. This method of medical inspection is effective, securing the repair of physical defects and correcting unhygienic conditions in over 90 per cent of cases. It is improving the physiological efficiency of at least a thousand boys every half year.

Second. This plan of individual instruction in personal hygiene has met with the support of the parents of practically all of the boys. Such support is essential to success.

Third. It is safe to expect that this continued personal relationship, extending throughout the high-school period and covering the first two collegiate years, will develop permanent habits of personal health control in many if not most of the boys under supervision.

HYGIENE OF CHILDREN'S TEETH.

WILLIAM H. POTTER, D. M. D.,

Professor of Operative Dentistry, Harvard University, Cambridge, Mass.

Until recent times, an incorrect emphasis has been given to the functions of the teeth. Much stress has been laid upon the part which they play in forming an attractive facial expression and in the production of spoken words. Comparatively little has been said in regard to the necessary part which they play in the preparation of food, so that it can be readily digested and thoroughly assimilated, which secures the development and upbuilding of the body and its fortification against disease. If the child is to have the physical benefits which come from a thorough digestion and assimilation of its food, if it is to acquire intelligence as to the kinds and quantity of food which are suitable for the development of the body, sound teeth, properly articulated, are absolutely essential.

Decayed and diseased teeth, on account of their defective surfaces, not only make a thorough treatment of the food in the mouth impossible, but they are the means of producing, developing, and nourishing that which is hostile to the child's physical welfare. The pockets of decayed teeth harbor many bacteria of a serious sort, notably those of diphtheria, pneumonia, and tuberculosis. If pockets of decay did not exist, harmful bacteria would have a much less favorable resting place in the mouth; their numbers could be reduced to a minimum and the chance of infection also lessened.

The actual condition of children's teeth can be best studied in our public schools. Examinations have shown that 70 to 90 per cent of all children in the public schools have defective teeth. The treat-

ment of defective teeth of children in public schools and institutions, whereby unclean, inefficient mouths have been made and kept clean and efficient, has been followed by a notable increase in the general physical health of the child.

It is without question of the greatest importance that children have clean and healthy mouths. How can it be brought about?

1. In all public schools there should be careful instruction given as to the nature of the teeth; their uses; the diseases which attack them; and the methods for preventing or diminishing these diseases. Children and their parents should be taught that the cleaning of the teeth and their thorough use upon hard foods will much reduce and perhaps prevent decay. School-teachers must assume an oversight in regard to their pupils' teeth.

2. Examinations of the teeth of all school children should be made at least twice a year.

3. Establish in school buildings school dental clinics in charge of dentists paid by the municipality. Add the services of a dental nurse, if the law makes them possible. These school clinics are to serve only those unable to consult a private dentist. A small fee should be charged in every case if possible.

4. Begin work upon school children before serious decay has occurred in their permanent teeth, and continue the supervision and necessary repair work through the twelfth year.

DENTAL HYGIENE FOR PUPILS OF PUBLIC SCHOOLS.

Dr. S. ADOLPHUS KNOPP,

New York Post-Graduate Medical School, New York City.

The existence of bad and decayed teeth is a disease of the masses as much as is tuberculosis, and as such it must be combated particularly in children of school age.

Just as we have societies for the prevention of tuberculosis, for the prevention of venereal diseases and alcoholism, representing the three great diseases of the masses, so should we have a society for the treatment and care of children afflicted with dental diseases. This society should be composed of all classes, medical and lay people, just as are the above-mentioned classes of societies. It would enable everyone who has the children's welfare at heart to contribute according to his means. The funds thus collected would materially aid to defray the expenses of taking care of the school children's teeth. Such a national society exists already in Austria. This society is composed of high officials of the Empire, statesmen,

pedagogues, physicians, teachers, and people of all sorts of professions and trades.

Let us have free and partially free dental clinics; let each child be carefully and practically reexamined for every possible physical and mental deficiency; let no child pass through life with a pathological or esthetic defect which can be prevented by timely treatment and care. The result of such provision will be better health and happier citizens.

UNIVERSAL SYSTEM OF MEASUREMENTS.

Dr. LEOTARDO MÁTUS Z.,

Santiago, Chile.

It has been years since scientific studies enabled us to determine accurately where the best racers are bred, but as yet no system has been established by which we can ascertain accurately where the most uniformly constituted human being is found; for anthropologic and ethnologic studies have not yet attained perfection. The basic factor preventing the complete study of the human race resides to-day in the lack of a universal standard of measurement.

Past congresses have been unable to determine upon the principal measurements to be applied to the individual. There is need of instruction in technique applied to the *living* person. The establishment of a universal standard of measurements, uniform apparatus, and uniform method of procedure are essential.

DEVELOPMENT OF HYGIENE IN EDUCATIONAL INSTITUTIONS.

Prof. DUDLEY A. SARGENT,

Harvard University, Cambridge, Mass.

Physical training was first introduced into our educational institutions largely as a health measure when one or two college presidents and prominent educators called attention to deterioration in health of college students. Amherst was the pioneer college in this movement, and in 1860 appointed a professor of hygiene and physical education, and a few years later a number of other colleges appointed directors to their gymnasias.

The students were required to attend a few lectures on physiology and hygiene, supplemented by required work in the gymnasium, both without credit. The growing athletic interest in colleges was another agent in establishing physical training in educational institutions. It was not until stimulation toward physical training was aroused through ambition to get into good physical condition for athletic con-

tests, or to excel in some sport or game, that our students found an incentive to adopt improved methods of living, or, in other words, began the practice of applied hygiene.

The college missed that early opportunity of placing before the students, through credited instruction, a vital and individual responsibility in regard both to their own health and to that of the community. The students, not being given a compelling object for which to strive, evolved their own aims through athletics. This hygiene interest has been evolved also among those striving to increase the efficiency of their lives from a commercial standpoint. Here again, the vital stimulus of necessity to be physically fit for labor, and to produce that labor under sanitary conditions, has resulted in a regard for public hygiene which the colleges have long ignored as an integral part of their curriculum.

There were several causes why the college failed to recognize the dignity of personal hygiene in practice as well as in theory; first, the baneful influence of all the evils of "professionalism;" second, the difficulty of getting young men of character and ability to take up physical training as a life work. Another factor lay in that separation of the student body whereby one class was prone to neglect their mental work and carry athletics to excess, while the other was encouraged by the premium put on scholarship to neglect their physical well-being.

But we are learning to broaden our conception of education, especially in realizing the bearing of physical conditions upon mental and moral life. Up to the year 1910 Dr. Meylan estimated that 98 per cent of the 136 colleges and universities in the list of the Carnegie Foundation had gymnasias, 94 per cent had regular instruction in gymnastics, and 80 per cent in athletics. In 75 per cent of these institutions the director of physical training is a member of the faculty, and in 87 per cent some form of physical training is prescribed. A recent investigation of 390 colleges, universities, mechanical and agricultural schools, etc., all over the United States shows that about 43 per cent of all, and 70 per cent of those that have recognized departments of physical training, have well-defined courses in personal hygiene, sanitation, and public health, either connected with physical training, or general electives.

The chief value, up to the present time, of physical training and hygiene has been in increasing the functional power of the individual. It now rests with our higher institutions of learning to transform that power from an individualistic tendency into an awakening of public consciousness, through realization of the intimate connection between education and the demands of society.

TRAINING IN PERSONAL HYGIENE IN PRIVATE AND PUBLIC SCHOOLS.

Prof. JOHN W. RITCHIE,

College of William and Mary, Williamsburg, Va.

Members of this congress regard hygiene as important, because they realize the possibilities there are in it for mankind. School authorities and teachers give little attention to hygiene because they have no comprehension of these possibilities. We must first of all convince teachers that health can be earned and purchased. Nothing so quickly brings them to a realization of the preventability of disease as comparative morbidity and mortality tables accompanied by simple explanations of the fundamental causes of disease.

Systematic instruction in the principles of hygiene is necessary to keep pupils from becoming lost in the multitude of details. This instruction should be founded on a solid knowledge of the structure and functions of the different organs of the body, and of the principles governing metabolism and microbic infection. As long as the people of countries like the United States persistently follow hygienic fads and fail to discriminate between arrant quacks and reputable medical practitioners, it is an exceedingly short-sighted policy that desires to exclude from our school courses in hygiene those fundamentals of anatomy, physiology, and bacteriology which throw the broad guiding lines through the maze of hygienic practice.

The teaching of hygiene should be begun before the habits of the child are fixed. Ordinarily nothing short of a complete collapse of the health will shake an adult out of his accustomed habits of eating, sleeping, and working. Even some of the world's authorities on hygiene daily violate the rules they lay down for the public because they formed their habits of living before they acquired their knowledge of hygiene. The teaching of hygiene should be begun while the child is yet in the plastic age, so that he can be sent out from school with a physical expression of his hygienic instruction in the habits of his life.

Individual attention should be given to the hygienic habits of the child. Toothbrush clubs, fresh-air clubs, and other organized hygienic efforts are very valuable in fixing correct living habits. Much can be done to develop a right attitude toward hygienic questions and to fix the habit of properly regulating local environment by good hygienic conditions in the schoolroom and in the home.

THE PUBLIC SCHOOL AS A FACTOR TO LESSEN INFANT MORTALITY.**Dr. HENRY L. COIT,***Newark, N. J.*

A comprehensive plan to check sickness and death among infants and young children is proposed by adding the French plan to the Manchester plan for "Little Mothers" and providing that the "Consultation for mothers" shall be conducted within the public school and finally become a part of its system.

The best means of preventing sickness and death would be to raise the living power of the individual to what is called immunity. If we could apply this principle to infancy and childhood through educational and prophylactic measures, we would bring about the greatest possible physical efficiency in manhood and womanhood.

While physicians have led in this crusade against infant mortality, it is strictly a problem in preventive medicine, and therefore clearly to be solved by educational methods, which should be applied by the people (the State), at the expense of the people, and for the people.

It can not be repeated too often that the most fundamental cause of infant and child mortality, expressed through many channels, is ignorance, and the most potent influence which will destroy and remove it is applied knowledge.

The instruction has, therefore, been given by private philanthropy in hospitals and infant welfare stations at a few isolated points and has been made available for comparatively few of the great mass of mothers who need it most.

PHYSIOLOGICAL AGE IN EDUCATION.**Dr. C. WARD CRAMPTON,***Director of Physical Training, Public Schools, New York City.*

Children should be classified according to their physiological development, rather than according to their school age in years. From birth to maturity children develop at different rates, some outstripping others in the race, so that we find at the age of 14 about one-third who are already men and women, one-third in a transition period, and one-third quite immature. The difference between the mature and immature of the same age is so marked that it is astonishing that the idea of separating them for educational purposes has not occurred to our school authorities. The mature group are 30 to 50 per cent heavier, 30 to 50 per cent stronger, and 10 to 15 per cent taller than the immature group of the same age. The mental abilities show an even more striking difference; the type of memory

changes from rote to associative; the mental grasp is increased by an influx of newly ripened instincts, resulting from the change from an unsexual to a sexual existence. The whole attitude toward life becomes attached to manly or womanly things, and the business of childhood is put behind. All these changes occur at about the time that the voice deepens, the second molar teeth arrive, and other easily recognizable signs of maturity appear. In short, of those who are from 12 to 15 years of age, we find some are young men and others are children, regardless of their ages in years or progress in school. We find the young men with their ripened potential abilities sitting on the same benches, taught the same lessons, and subject to the same discipline as children, and the results are quite as poor as they would naturally be under these circumstances. The fundamental fact that the immature and mature are wholly different and should receive different educational and social treatment is disregarded. In the elementary school the mature do badly; in the high school, frankly fitted to their needs, they do 20 to 50 per cent better than the immature. While it is at this point the educational system on the inflexible basis of scholasticism and chronological age breaks down, it suffers from a lack of rational classification wherever mature and immature children are brought together in the same classroom.

SCHOOL CHILDREN OF THE STOCK YARDS DISTRICT OF CHICAGO.

DR. CAROLINE HEDGER,

Chicago, Ill.

Statistics indicate that almost 50 per cent of the children of the Stock Yards district showed material retardation in the two schools in the district from which the 200 pupils studied were taken. In the region in which they live the smoke comes down in clouds, and with it comes the smell of the fertilizer plants. This is not conducive to deep breathing or sound sleep, and the children impress one as lacking oxygen, being round-shouldered, thin, and rather pale. Statistics show also that the children as a whole are bad, physically, in almost the direct proportion as they receive insufficient food, have little room to live in, are forced to sleep in crowded beds, and have the reflected worry from taxes and mortgages. They have not the spirit and the nervous balance to make their grades. If the child grows inactive, discontented, becomes idle and criminal, is the child to blame?

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LETTER OF TRANSMITTAL.

DEPARTMENT OF THE INTERIOR,
BUREAU OF EDUCATION,
Washington, April 24, 1913.

SIR: It is generally conceded that Germany has done more toward adapting industrial education to the needs of the people than has been done in the United States. Conditions in the United States differ widely from conditions in Germany, and the details of adaptation must therefore be different, but the underlying principles are the same. In arriving at an understanding of these principles, and for suggestions in applying them under American conditions, a clear presentation of industrial education in Germany can not fail to be helpful. I therefore recommend that the manuscript prepared by Dr. Holmes Beckwith, and transmitted herewith, be published as a bulletin of this bureau.

Respectfully,

P. P. CLAXTON,
Commissioner.

The SECRETARY OF THE INTERIOR.

PREFACE.

The purpose of the present study is to ascertain in what ways we in the United States may develop industrial education so that it may be of the greatest service to industry and to industrial workers, as well as to the whole people. The economic viewpoint and economic aspects have dominated the pedagogical, and the practical outcome has at all times been kept to the fore. Industrial education for the masses, for the rank and file of the workers, has been the chief concern. I have not concerned myself with agricultural nor with commercial education, however important these fields may be. Industrial education for girls and women has been taken up but slightly.

In the United States we lack large practical experience with industrial education for the mass of workers. Of all countries, Germany has had probably the largest and most fruitful experience with such education and has most to teach us. To learn at first hand from German experiences, I spent the summer of 1911 investigating industrial education in Germany. The cities visited were selected with a view to their importance industrially and include a number of the chief industrial centers in various lines of manufacture. The following cities were visited: The city State of Hamburg; Leipzig, Dresden, Chemnitz, and Plauen in Saxony; Munich in Bavaria; Mannheim in Baden; and Berlin, Magdeburg, Frankfurt on Main, Coblenz, Cologne, Dusseldorf, Elberfeld, Barmen, Dortmund, Essen, Duisburg, Crefeld, Munchen-Gladbach, Rheydt, and Aachen, in Prussia. Numerous industrial schools of all grades were visited, a large proportion of which were in operation. Inquiries were made of school directors and teachers, and members of school boards, as to the organization, methods, and results of the schools. The relations of the schools to and their results on industry, and the attitude of industrial employers to them, were especially investigated. In almost every city the chamber of industry was visited and inquiries made of these bodies, which are the best fitted of all to represent the opinions of the masters. In addition, a considerable number of school reports and other printed data were collected, of which one could learn only when on the ground.

It may be questioned whether German experience is likely to be largely useful to us in the United States, on account of our differences, economic, political, and temperamental. In Part II I shall note some of the economic differences. The psychological and political differences are well known. Suffice it for the present to say that I believe these constitute no essential bar to our adoption of

such features of German industrial training as I shall recommend. It is to be understood, however, that details may and probably must be modified; at times this modification may approach the essentials. It is as yet too early to say what these modifications will be.

Two terms used require special mention. The German term "Fortbildungsschule" has usually been translated "continuation school." This translation does not give the accurate meaning in most cases where the term is used. Following Dr. A. A. Snowden, in his book, *The Industrial Improvement Schools of Wurttemberg*, published by Teachers College, Columbia University, in 1907, I have rendered the term "improvementschool." In case of a few schools that *are* merely continuation schools, merely continuing the subjects of the common school, the same term has been rendered "continuation school." It is believed that this distinction in terms will clarify a real distinction in meaning, and that the scope and aim of almost all German Fortbildungsschulen are much better represented by the term "improvement schools."

The term "trade school" when applied to the United States is used, agreeably to current usage, to mean a school which teaches the operations as well as the science of a trade or trades. The same term when applied to Germany is used in a different sense, agreeably to German usage as to terms and practice as to schools. A "Fachschule" in Germany is a "specialty school" or "trade school," and such a school may teach the practice of a trade or trades, or may and often does confine itself strictly to technical (theoretical) training.

My gratitude is due to Prof. Henry R. Seager, of Columbia University, for his advice and criticism. A number of others, loyal friends of industrial education, kindly gave me their counsel. I acknowledge especially the aid of Prof. Charles R. Richards, director of Cooper Union, New York City, who suggested many of the topics which I later investigated; Dr. A. A. Snowden, of the New Jersey Commission of Industrial Education; Prof. Paul Hanus, of Harvard University, chairman of the Massachusetts Commission on Industrial Education; Prof. John Graham Brooks; Prof. M. E. Sadler, of the University of Manchester; and Mr. Charles H. Morse, of the Massachusetts Commission on Industrial Education. I can not here acknowledge by name the numerous German schoolmen, chamber of industry officials, and others, who received me very courteously and with detailed care aided me in my inquiry. To them, as a group, I give my hearty thanks. Two men I will mention whose help I especially appreciate, Herr Schulinspektor August Kasten, of Hamburg, and Herr Direktor Kandeler, of the Second Compulsory Improvement School of Berlin. Finally, my greatest debt is due to my wife, for her criticism and her patient and careful performance of the arduous clerical labors necessary for preparing the book for publication.

I offer the study for the earnest consideration of those who wish to see the industrial efficiency of our citizens increased.

HOLMES BECKWITH.

GERMAN INDUSTRIAL EDUCATION AND ITS LESSONS FOR THE UNITED STATES.

PART I. THE UNITED STATES.

CHAPTER I.

THE APPRENTICESHIP SYSTEM.

When we ask by what means are our industrial workers now trained for their work we must, to answer intelligently, examine into the present status and tendencies of the apprenticeship system. If these be such that apprenticeship meets, and promises to continue to meet sufficiently, the needs for individual training, what function have industrial schools to perform? That apprenticeship, in combination with all other activities now in the field, does not adequately meet present needs is shown by the complaint heard from many sides of the lack of skilled workmen.

The apprenticeship system took its rise in medieval handicraft work. A youth would bind himself to a master workman for a period which came in most cases to be fixed at seven years, work for him, and in turn live in his house and be taught "the art and mysteries" of his trade. The personal relations were exceedingly close, and the personal factors dominated the technical—conditions under which the system was at its best. The interest of master united with that of the apprentice in seeking thorough training for the latter, because the long apprenticeship gave the master abundant chance to gain, if he had trained his apprentice to become a skillful worker. The result was a system which, for the type of industries of the day, was probably better than any other which could be devised. The apprentice and his master were in the early days of the system on an approximate social equality in the sense that they came from the same social class. The apprentice looked forward to becoming within a few years a master himself, and this anticipation was often fulfilled. In the later middle ages, the guilds, or organizations of the masters of a craft, opposed such improvement of the status of the apprentice and tried with much success to restrict mastership to the families of guild members. Other great defects of the medieval system were that the apprentice was required to spend much of his time doing household

tasks and other drudgery which advanced him little or not at all in his craft training, and the period of apprenticeship was often longer than was necessary thoroughly to learn his trade.

In the United States apprenticeship in its early stages was much like the system in medieval times. Legal indentures were the rule, in which parent or guardian, justice of the peace, or benevolent society, acting for the youth, bound him out to manufacturer, merchant, craftsman, or mariner, usually for the period terminating at his majority.¹ Both parties appeared in court and swore to carry out the provisions of the written indenture, whose terms were made to suit the special desires of the parties concerned. The policy of the State was to have all youths of artisan class taught a trade, and neglected and orphan children provided with a home. Thus any failure of the employer to carry out his contract made him liable to damages. The State further protected the apprentice by requiring from him promises of good behavior, while he also was punishable for violation of his obligations. Parents desired indentures to insure to their boys a chance to learn a trade fully, while employers desired the contract that they might be protected from loss of the services of the apprentice during his last and most valuable years of training. The indenture involved a real loss of personal liberty; and much of the law of apprentices, as that concerned with runaways, classed them, in effect, as slaves. The contract assumed an equality of master and apprentice which did not, in fact, exist. This inequality appeared in its worst form in the compulsion put on the apprentice, as in medieval times, to do odd jobs by which he learned nothing and by which his term of apprenticeship was unduly extended. The apprentice found himself after a time doing as good work as a journeyman while he must for years accept an apprentice's meager wage. A feeling of resentment against unjust treatment developed in his mind and frequently vented itself in slighted work. Expanding ideas of personal liberty in the mind of the apprentice, in which he but followed the spirit of the times, conspired with industrial changes to cause the gradual decline of the use of the indenture.²

The industrial revolution ushered in methods of production and transportation whose results on industry as well as on social life generally are clearly marked. Among others, the concentration of industry, the increase in the use of capital, organization of workers in a hierarchy of ranks, and the use of machine tools, conspired against the apprenticeship system. The technical elements have come, in most of our modern industries, to dominate the personal, at least in the sense that relations of man and man are chiefly determined by technical considerations. Now the best in the apprenticeship system depends on personal relations for its efficiency, on mutual

¹ Motley, J. M. Apprenticeship in American trade unions. Pt. I, ch. I.

² Ibid., ch. I, p. 17.

understanding and adaptation of master and apprentice, teacher and taught. The master craftsman of the earlier days, who was often at the same time merchant, has given way to the entrepreneur, the administrative and financial head, and to the master craftsman who works for wage as superintendent, foreman, or skilled worker. The former, our modern entrepreneur, no longer works with and teaches his apprentices; he delegates those functions to subordinates; takes, as a rule, less personal interest in the welfare of his apprentices, and concerns himself chiefly with other, and to him apparently, more pressing matters. Moreover, the necessities for competing for a wide, and in many cases a world market, and thus increasing output and lowering cost by every possible device, have left little time for superintendent, foreman, or journeyman to instruct apprentices. It is not to the interest of any subordinate to instruct the apprentice unless the entrepreneur requires it, and moreover pays for it as fully as for regular work. Consequently, in the great majority of shops, the apprentice is compelled more and more to shift for himself and "pick up" his trade as best he may, which is generally not very well. Pieceworking journeymen would, it is said, not even deign to shut a door unless their comfort required it; still less would they show an apprentice how to do anything. Even a journeyman paid by time is likely to find, in the long run, that instruction given to apprentices is at his own cost and means just so much less bread and butter in the mouths of his family. An example of this condition is given by the amusement with which a printer speculates as to the result to a journeyman in a big city office who should have the temerity to enter on his time card, "Half an hour spent showing Johnny the why and how of the Smith job."

Why, then, does not the astute entrepreneur direct his subordinates specifically to instruct his apprentices and make it worth their while to do so? The answer is that he does so at his own peril, and at the cost of an immediate money loss. If he be farsighted enough, and moreover can afford the immediate expense, he may shoulder the cost for the sake of having an assured supply of skilled labor for the future. But unfortunately farsightedness is not fully developed even in entrepreneurs. Further, all entrepreneurs now recognize that they secure their labor supply from a general market, whence, if they are able to offer sufficient inducement, they may obtain journeymen trained by others; while on the other hand, if they go to the expense of training apprentices it may be merely to see them later enter the employ of other, and possibly rival firms. Here we see one of the results of competition, which, when severe, generally leads competitors, especially smaller and weaker ones, to follow their immediate advantage with little regard to the future. So it comes about that modern entrepreneurs, in the main, do not feel

the necessity of thoroughly training apprentices and thus lack a sense of responsibility in the matter. The result is that each employer keeps up as well as he can, very many of them on the basis of skill taught by others. Apprentices learning their trades in the country go to the great cities as journeymen. So desired are city jobs that many contractors can get all the journeymen they need, and do not have to take any apprentices at all. This country is also dependent on the continuous supply of skilled workers who come here from Europe; without these, in fact, the situation would be more pressing than it is. The dearth of apprentices is met temporarily in many of the building and other trades by the employment of "helpers," in the building trades, men who seldom rise, while in some other trades, as the machinist, they usually are younger, and in time become journeymen.

The apprenticeship system has thus been declining for many years. By the sixties the old indentures had largely passed away, so much so that they were no longer the rule but the exception.¹ American industry was in a transition stage of adoption of division of labor and of machinery, and along with these changes the old system of apprenticeship was fast passing away. However, apprenticeship is not by any means dead yet, and of late years has seen a revival in improved form, adapted to the conditions and needs of modern industry. In the recent emphasis on industrial education the vitality of the improved apprenticeship system has been somewhat overlooked. Of its methods I shall speak later; suffice it for the present to point out some scanty yet significant indications of its strength. The Twenty-seventh Annual Report of the Massachusetts Bureau of Statistics of Labor for 1906 shows that out of 58 employers engaged in different industries 31 had a system of apprenticeship and 27 had no such system, while of 104 officers of trade unions 55 represented trades where apprenticeship was, and 44 where it was not, in force.² President Charles S. Howe, of the Case School of Applied Science, Cleveland, Ohio, sent a letter in 1907 to 400 manufacturers in Ohio, including nearly all the large firms.³ He received replies from 124. Of these, 56 had an apprenticeship system, while 68 had none. Most of those training apprentices, however, gave them but the minimum training necessary that they might do their work fairly well. These figures should not be taken as indicative of the proportion of firms throughout the country which train apprentices. The average would probably be considerably lower, for the firms replying average among the larger and better and are in the more fully industrialized States. Messrs. Cross and Russell, of the New York Central Railroad, have discovered that "55 railroads have 7,053 apprentices in 368 shop

¹Wright, C. D. The apprenticeship system in its relation to industrial education, 1906, p. 15.

²Mass. Bureau of Statistics of Labor, An. Rep., 1906. Pt. I, p. 2.

³Wright, pp. 18, 19.

plants, while 67 plants answering have no apprentices."¹ The National Machine Tool Builders' Association found that a large percentage of the firms employing apprentices were in New England, the Middle Atlantic, and the Central Western States; and, further, that the majority of them entered into formal contracts properly to instruct the apprentices during a stated period of indenture.² According to the Vocation Bureau of Boston:

From the latest statistics available 43 States have laws relating to the employment of apprentices. Thirty-eight States provide that, in addition to the trade, the apprentice shall be taught the common English branches of education in some public or other school or through such means as the employer may provide.³

Most of these laws, however, are dead letters. As Prof. McCarthy writes: "The Wisconsin apprentice law was drafted in 1849 and is useless paper to-day."⁴

Notwithstanding this persistence of the apprenticeship system, the industries of the country are suffering from a great dearth of skilled labor. There can be little doubt as to the widespread nature of this dearth, whatever be regarded as its cause or causes. The nature of the lack is indicated in part by the summarized results of an inquiry conducted by the New Jersey Commission on Industrial Education, to which over 2,000 manufacturing, building, and other industrial firms throughout the State, employing 250,000 workers, replied. Workers in the building trades most urgently needed industrial education:

Comparatively few can read or understand a drawing, and as for expressing their ideas on paper by means of sketches it is generally out of the question. In the important machine industries a knowledge of workshop mathematics or applied mechanics, ability to follow working drawings, and to make a suitable sketch, as well as familiarity with the practices of the trade, are matters in which many are found wanting.⁵

A further lack, caused by specialization, is discussed below.

Dr. Motley, in his monograph on Apprenticeship in American Trade-Unions, shows that apprenticeship has been successively regulated in the history of industries in the United States first by statute law or indenture, later by custom, then by trade-unions, and lastly by trade agreements between employer and employee, determined by a joint board. None of these methods ever held the field to the exclusion of others, and in their evolution they overlap each other. Nevertheless, the general order of dominance of the several methods is as given. As our industries developed into the modern form the indenture fell into

¹ Wright, p. 43.

² Ibid., p. 18.

³ Bulletin No. 1. The Machinist. Vocations for Boston Boys. Issued by the Vocation Bureau of Boston. P. 10.

⁴ Report of the (Wisconsin) Commission upon the Plans for the Extension of Industrial and Agricultural Training. Jan. 10, 1911, p. 81.

⁵ Rep. of N. Jer. Comm. on Indus. Educ., 1909, pp. 4, 6.

disuse, individual bargaining came into vogue, the power of the employer increased, and trade customs were openly disregarded whenever it was to his interest. Thus it was that trade-union regulation of apprenticeship was for some time concerned chiefly to uphold old customs of the trade. Later the unions attempted to determine the length of the term of apprenticeship. Finally, beginning in 1839, with a regulation by the Typographical Society of New Orleans, unions which had suffered a lowering of the average skill of their members by the widespread practice of runaway apprentices working as journeymen, and were thus in danger of a lowered wage, tried to limit the number of apprentices to some proportion of the number of journeymen. This proportion, though ostensibly such as would meet the needs of the industry, was generally determined by rough guesswork. The unions found themselves too weak effectively to enforce these regulations without the formation of national and international unions. Some unions have been strong enough to enforce their regulations on apprenticeship, but with very many this remains merely the ideal toward which the unionists strive. Even where national unions impose exact apprenticeship rules, locals hesitate to strike to enforce them, and so it comes about in general that only where there is a strong local union are such regulations enforced. Moreover, the assumption by the unions of the sole right to regulate apprenticeship matters has aroused strong opposition among employers, resulting in an intense struggle from which there has now emerged the present dominant system of regulation by joint agreement between representatives of employers and employed, often through associations covering a whole locality or local industry.¹

According to Motley:

Of the 120 national and international trade-unions, with a total of 1,676,200 members, affiliated in 1904 with the American Federation of Labor, 50 unions, with a membership of 766,417, do not attempt to maintain apprenticeship systems.²

These 50 unions include 35 unions of unskilled workers who are able to pick up a knowledge of their work in a short time; 11 unions, 7 of which are in railroad work, whose trades are recruited by promotion from associated positions, as engineers from firemen; 7 unions in whose trades machine work and minute division of labor have made apprenticeship impossible; and 2 unions representing properly professions rather than trades.

The remaining national unions, that is, about 70 of the 120 affiliated in 1904 with the American Federation of Labor, with a membership of 900,000, together with some half-dozen unaffiliated national unions, attempt more or less successfully to enforce apprenticeship regulations.

"Of these 70 unions," says Motley, "only about 19 actually succeed in enforcing apprenticeship as a prerequisite to membership."³ In

¹ Motley. Pt. I, chs. 1-4.

² Ibid., p. 52.

³ Ibid., pp. 52-60.

fact, neither employer nor union is able to control the apprentice situation satisfactorily, even in those points where they are in agreement. Apprentices, after obtaining a smattering of a trade or becoming half trained, frequently run away and take up work elsewhere as journeymen, a practice exceedingly hard to stop.

Minor motives of unionists in the regulation of apprenticeship are the desire to uphold the standard of workmanship because of pride in their trade and their skill and the need of a common measure of ability (or "standardized" ability) for the purpose of collective bargaining.¹ Unionists fear to attempt to secure a high wage rate, for some of their number, being poorer workmen, may be unable to reach it, and may thus injure the others by their competition. An approximate equality of ability, such as could best be secured by a uniform minimum of apprenticeship training, would greatly improve the conditions of collective bargaining as compared with the present basis of some thoroughly trained workers and some half trained.

An investigation of the Minnesota Bureau of Labor into strike and other statistics indicates that—

the employers of the United States practically control the regulations of the training of new workmen in the greater number of American mechanical and manufacturing industries, subject, however, to State laws regulating child labor.²

The major responsibility for the conditions thus rests with the employers. Where employers have not attempted to regulate these matters, unions have often assumed the responsibilities and with them the powers of regulation.

In conclusion, the net result of our inquiry into the influence of trade unions on the scarcity of skilled workmen seems to be that to no great extent is that scarcity due to union action. We must look elsewhere for the chief causes of this lack.

Of some of these, incident to modern industrial changes, I have already spoken. One remains, and that perhaps the most important of all. That is specialization, or the division of labor. Though affecting different industries very unequally, the aggregate effect on apprenticeship and on both the demand for and supply of skilled labor has been very great. Roughly speaking, this effect has been greatest on the metal, on some of the leather and wood industries, on textiles, and on garment making. The subdivision of processes in some of these industries has been very great; for example, the making of a modern shoe involves about a hundred processes. In the past, all craftsmen proper were compelled to be skilled; now the tendency is toward a differentiation into many industries, the result of which is a demand for a large number of workmen of moderate skill, or in some cases unskilled, and a lesser number of highly skilled workers. The mere fact that a worker is running a machine does

¹ Motley, p. 72.

² Minnesota report, sec. xx, p. 378.

not mean that less skill is required of him than of the old craftsmen; it may be that he must be more skillful. There are machines, however, run by mere machine tenders who need have little intelligence or training. Such machines, requiring little or nothing but the indefinite repetition of a few simple motions, constitute in the demands from and consequent effects on the worker one of the greatest of our present-day problems. Another type of specialization does not involve mere machine tending, but rather the subdivision of what was once one trade into a number of branches, in which the tendency is for the worker to learn and practice but one. Thus the most advanced practice in carpentry involves the specialization of one man in door-hanging, another in tacking molding, another in laying floors, and so on.

The speed at which modern industries are run, in the ceaseless effort to increase output and lessen cost, militates strongly against the possibility of an apprentice learning more than a branch of a trade. The foreman or superintendent is strongly led to keep the apprentice at that work for which he shows an aptitude. To change him from machine to machine or branch to branch of the trade involves for the time a decreased output; and modern competition, as a rule, leaves little thought for remote results, especially when whatever benefit is obtained in the future may be reaped by another. Such is the condition when the apprentice is earnestly seeking to learn the whole trade; but many trades are unable to secure enough good apprentices because of the long years of service at low pay. The boys or their parents are unwilling to make the sacrifice and far too often accept better immediate wage in industries of lower grade, with less promise for the future, instead of learning a good trade.

This attitude, with technical factors in some industries, has resulted in bringing about what is called the special apprenticeship system.¹ Under this system the apprentice is indentured to one department only of a trade, for a period varying from one to two years, as against the average for regular apprenticeships of about four years. Such a system has been adopted by the National Association of Machine Tool Builders who declare that they are confronted by a condition and not a theory. When boys are transferred from one department to another, there is a loss of immediate efficiency, on account of which high enough wages can not be paid to attract a sufficient number of boys. The only way to obtain apprentices enough was to pay higher wages, and this required giving the boys work that paid their employers from the start. Boys were accordingly taken for a trial period of 240 hours and then indentured to one of the 11 departments: Turning, vertical boring mill, horizontal

boring mill, planing, milling, drilling, grinding, erecting, turret, vise, and scraping. The narrow range of attention allowed rapid advance in proficiency and a correspondingly high wage. At the start 12 cents an hour was paid, increasing successively to 14, 16, and 18 cents, and as high as 20 cents after a year and a half. A general apprenticeship frequently pays less near the end of a four years term than this special apprenticeship after a year's work. For comparison, the general apprenticeship under this association is three years, and the wages paid only 8, 10, and 13 cents an hour for the first, second, and third years, respectively.

So strong are the tendencies toward this system, so manifest its advantages, that we are bound to see its great development. Yet its chief advantages are immediate, and it is subject to disadvantages whose force does not at once appear, but are none the less vital. From the standpoint of the industry, or of the employer, an increase in the extent of this system means a labor force less adaptable and mobile. We must recognize that there is a fundamental difference between this type of specialization and that of physicians, lawyers, and scientists. The latter specialize on the foundation of a broad general training; the specialized apprentice knows nothing but his speciality. The weaknesses of the system affect the apprentice most. An apprentice, if all goes well, may after the completion of one special apprenticeship take up another; but few are willing to do this; meaning, as the change would, a decrease in wage for the time being from 18 to 12 cents an hour. He may earn as much pay and have as regular work as if he knew the whole trade; despite the fact that he will sooner exhaust the possibilities of interest in his work. But he has not the resource possessed by the man who is trained in the whole trade; his alternatives for employment are fewer, and a relatively slight change in industry or a dispute with his employer may leave him unable to obtain work. The displacement of workers trained in the whole trade by those acquainted with only a small part of it can scarcely fail to increase the dependence of workers on employers and so strike a blow at our democracy. Yet so great are the immediate advantages of this system to both employer and apprentice that we are likely to meet it in the future far more than we should like. Such specialization should be distinguished clearly from those forms where either the specialization is made on the basis of a previous broad training, as is usual in building carpentry; or, where the portion of a trade studied is so large and complex as to tax the abilities of the apprentice and give him considerable resource and alternative in later life, and is therefore tantamount in its extent to a whole trade of earlier years. Such subdivision of trades we must recognize as in the main necessary and desirable, in view of the great technical advances

of recent years, which add greatly to their complexity, and are probably free from the chief disadvantages urged above against narrow and exclusive specialization. Finally, extreme specialization in some industries, as in boot and shoe or watch manufacture, has made any semblance of an apprenticeship system nigh impossible.

In some trades the helper system is a substitute, in part at least, for apprenticeship.¹ The helper is an adult, and neither performs the same operations as the journeyman with whom he works nor is usually given any instruction in the latter's work. He "picks up" his trade if he can by watching the journeyman, and, occasionally, performs the operations of the trade proper. Helpers are largely present in the building and other trades where a man's strength is necessary. No definite term as a helper is usually necessary before entering the trade proper. The helper system is more important than apprenticeship in trades where experience is the chief factor in proficiency, as in printing and in the work of locomotive engineers. The fireman is the engineer's helper, as the brakeman is of the conductor, and each of these sets of helpers recruits the higher positions after passing through examinations.

Three different groups of helpers may be roughly distinguished, according to Messrs. Weyl and Sakolski: "(1) Ordinary laborers; (2) 'improvers,' 'holders on,' or 'junior workmen'; and (3) handy men."² The ordinary laborers, as hod carriers, seldom become journeymen. The second group, "improvers" or "junior workmen," do work similar to that of the journeymen who supervise them. Their wages are 25 to 50 per cent lower than those of journeymen; hence they tend to do the latter's work whenever possible, unless prevented. "Handy men" do not work under journeymen, but do odd jobs and less skilled operations. They also come into competition and conflict with the journeymen.

The helper system tends to recruit the ranks of journeymen more rapidly than does apprenticeship, and so has given rise to many struggles between journeymen and helpers or employers.

¹ Weyl, Walter E., and Sakolski, A. M. Conditions of entrance to the Principal Trades. Bulletin of the Bureau of Labor, No. 67, Nov., 1906, pp. 768-777.

² *Ibid.*, p. 770.

CHAPTER II.

OPINIONS OF EMPLOYERS AND EMPLOYED.

What is the attitude of the employer toward the present situation, and what that of the employees? In particular, how do they regard trade and technical schools as a means to help solve the practical problems confronting them? These are questions whose answers are of vital importance, for the cooperation of employers and employees alike is needed in any attempts at betterment.

The attitude of employers and employees toward restriction of apprenticeship is well shown in an investigation conducted by Prof. Charles R. Richards, and published as Part I of the Report of the Bureau of Labor Statistics of New York State for 1908 on Industrial Training and in Part I of the similar Massachusetts report for 1906. Returns from New York show the following: Two hundred and one firms employed the full number of apprentices allowed by union rules, while only 128 do not do so. Only 172 firms are prevented by trade-union restrictions from employing as many apprentices as they otherwise would, while 263 are not so prevented. Out of 309 firms stating that the apprenticeship system does not meet the need for skilled employees in their industry, 111 offer the trade-union restrictions as the cause of this lack, a larger number than favor any other single cause.

The only firms that state both that trade-union restrictions prevent them from having as many apprentices as they would otherwise have, and that they are employing the maximum number of apprentices allowed by union rules are glass blowing, book, job, and newspaper printing, bricklaying, electrical contracting, steam fitting, and tile setting.¹ Turning to the Massachusetts report we find questions and answers as follows: Is the apprenticeship system (if any) under the immediate control of the trade-unions? Twenty-one employers answer yes; 37, no; 46 union officers answer yes; 56, no. Do you consider it a good plan to restrict the number of apprentices? The employers vote no by 41 to 5; the unionists, yes by 71 to 18. If the employer were permitted to employ as many apprentices as he wished, would he dispense with the services of the journeymen now employed; or, in other words, would he employ apprentices to the exclusion of journeymen? The employers vote 39 to 4 in the negative; the unionists declare assent by a vote of 67 to 20.² These figures speak

¹ New York Bur. Labor Statistics, 26th An. Rep., 1908, Pt. I, pp. 29, 35, 36, 38-50.

² Mass. Bur. Statistics of Labor Rep., 1906, Pt. I, pp. 6-11.

for themselves. They show a natural disagreement of opinion between the parties concerned as to the results of trade-union restriction of apprentices. They also show, I think, that according to the employers' own opinion, the restrictions are less harmful than is usually thought by employees. So much for opinions on restrictions of apprentices. What attitudes do employers and employees take on the further questions of trade training?

The New York report mentioned above gives some statistics of the views of employers: Five hundred and forty-nine firms stated that they had difficulty in obtaining or in training skilled employees; 569 firms that they had no difficulty. The number of firms reporting that all of their skilled employees were trained in their establishment was 74; that the majority were so trained, 435; that a few were there trained, 447; and that they had trained none of their skilled employees, 210.¹ Where difficulty in obtaining or training skilled workers was reported, the minority of such workers were usually trained in the works; the firms that reported no such difficulty had trained the majority of their skilled workers.

As typical of the views of employers may be taken the report of the committee on apprenticeship of the National Association of Builders, who say that "apprentices must be taught and mechanics made in the future by entirely different methods from those in vogue" under the old apprenticeship system.² The method proposed is by preparatory private trade schools, affiliated with but not run by an association of builders, and involving a shortening of the ensuing apprenticeship by at least a year. James W. Van Cleave, ex-president of the National Association of Manufacturers, advocates a manual-training department in every public primary school and in free industrial high schools.³ The committee on industrial education of the American Foundrymen's Association advocates industrial continuation schools which should become differentiated into trade schools as the pupils reach the age of 16.⁴ These views of employers, favorable to trade and technical education, may be taken as representative. Carroll D. Wright declares:

All employers realize the importance of this kind of education [that is, public industrial education]. Those who can afford it prefer their own system. * * * But it is very rare to find an employer opposed to some scheme of industrial education.⁵

Wright further states:

Careful investigation shows that the demand for trade schools comes from employers who have no systematic, definite method of training their apprentices. These men are of the opinion that a public trade school would furnish them with a supply of

¹ N. Y. Rep., p. 15.

² Minn. Rep., pp. 435, 436.

³ Rep. of special committee on indus. educ., Amer. Fed. of Labor, 1910.
Wright, p. 60.

skilled mechanics. Generally they have no more realization of the probable results of a public trade school, as far as producing skilled mechanics is concerned, than they have of the possibilities of a first-class apprenticeship system in their own works.¹

These remarks, it should be noted, apply only to trade and not to the more general type of industrial schools. Those firms which have a first-class apprenticeship system themselves generally feel that no public trade school could meet their needs, but they are not opposed to such schools in general and desire them for the industry at large.²

The New York report mentioned above presents the results of questions asked of 1,182 employers and of the officers of 2,451 unions in the chief industries of the State, showing the attitude toward different types of industrial and trade schools.³ The question was asked: "Do you favor a public industrial or preparatory trade school which should endeavor to reach boys and girls between 14 and 16 who now leave the common school in very large numbers before graduation? Such a school would not teach a trade, but would give a wide acquaintance with the materials and fundamental processes, together with drawing and shop mathematics, with the object of giving a better preparation for entering industries at 16 and better opportunities for subsequent advancement." To this both employers and unionists replied in the affirmative; the employers by a vote of 840 to 248, the unionists by one of 1,500 to 349. Among the manufacturers the different industrial groups favored this type of school in the following order: "Machine and metal manufacturers, building trades, wood manufacturers, printing and paper manufacturers, glass manufacturers, textile industries, clothing trades, leather manufacturers, confectioners." The skilled trades are thus most strongly in favor of such schools, and the only group opposed is the cigar makers. The question, put somewhat differently to the two groups, was asked whether trade schools for boys and girls were favored, which should give one or two years of practical training together with drawing and mathematics, provided (this part of the question sent to the unionists only) graduates should serve two years as apprentices or improvers. Both groups answered affirmatively, but by a less overwhelming vote than that for the more general type of industrial schools; the employers voted 744 to 341, the unionists by 1,232 to 567. The order in which the different groups of employers favored these schools is as follows: "Machine and metal manufacturing, building trades, leather manufacturing (chiefly boots and shoes), wood manufacturing, printing trades, textile industries, clothing industries, manufacture of cigars." Employers were further asked whether they thought the proposed trade schools could be "advantageously administered by the State or community at public expense

¹ Wright, p. 78.² Ibid., p. 60.³ N. Y. Rep., pp. 38-50.

and operated on a noncommercial product." To this they replied in the affirmative by a vote of 582 to 348. Their answer to the question: Would such schools, if conducted by industrial establishments and operating on a commercial product, be practical? was negative by 529 to 405 votes. Thus every group of employers, with the exceptions of those manufacturing leather, cigars, and confectionery, preferred State or community to private management. Finally, to the query, would practical evening or half-time schools be of value in helping unskilled workers or those of low-grade skill to advanced positions requiring high-grade skill, the employers reply affirmatively by a vote of 738 to 305. The relative faith of the employers in the various classes of schools is indicated by the following table from the New York report:¹

Industries.	General industrial schools.	Trade schools.	Evening schools.
Glass.....	1	3	2
Metals.....	1	3	2
Wood.....	1	3	2
Leather.....	2	1	3
Printing.....	1	2	3
Textiles.....	1	2	3
Clothing.....	1	2	3
Confectionery.....	1	3	2
Cigars.....	3	1	2
Building.....	1	3	2

A considerable number of employers thought evening trade and technical schools desirable. It was the general industrial school which won first place in the opinions of almost all; and it is noticeable that trade schools were placed last by all the industries commonly called highly skilled, except the printing trades. The net result, from both employers and unionists, is that general industrial schools are overwhelmingly desired; day trade and evening trade and technical schools are also desired, but less vigorously.

The National Association of Manufacturers has, since 1904, recognized the importance of the question of industrial education by the appointment of a committee which has reported annually since 1905. This committee, stirred by a realization of the paucity of skilled mechanics, has persistently advocated industrial schools. Moreover, it has claimed that trade schools alone can turn out finished workmen, without the need for any apprenticeship. In 1910, the committee went into the question of the sort of schools to be desired, and reported as follows:

Great progress has been made throughout the country in approaching general agreement on the following points:

1. That the interests of manufacturing industry require a new education for boys who are to work with tools and machines.

¹ N. Y. Report, p. 49.

2. That this industrial education must consist of skill and schooling and that these two parts are of equal importance; that they must be organically combined and that each will coordinate and supplement the other.

3. That real skill and suitable schooling can not usually be given in the ordinary public school by the average schoolmaster.

4. That the average manufacturing shop or factory is not likely to organize private trade-school departments in their works that will give the best results in both skill and schooling.

5. That real trade schools are feasible and practicable where a higher practical, efficient shop skill can be secured than has ever been known under the ordinary apprenticeships, and that this is possible even when one-half of the apprentice's time is devoted to schooling adapted to the life of the pupil.

6. That such half-time trade schools can be so organized and conducted that a superior high skill and a broader shop experience can be secured than the average manufacturing shop can give in its specialized modern factory, because there the object is to make money and not to make skilled, intelligent, trained workmen.

7. That such a real trade school must have well-equipped, productive shops, where pupils are taught the best methods of rapid, high-grade production by skilled working mechanics.

8. That such trade schools need not produce anything but useful, high-grade products, with a very small percentage of spoiled work or damage to tools and equipment—a smaller percentage of loss than occurs in the average shop.

9. That where such a trade school can be established, with modern buildings and equipment and a moderate working capital, well managed, it will not only be an efficient educational institution, covering the high-school period, but it will be productive and largely self-supporting.

10. That such a real trade school can be maintained with a course corresponding to the high-school course, persistently aiming to turn out working mechanics with superior mechanical skill and wide shop experience, plus good mental training. In this way a class of skilled American mechanics will be produced, meriting higher wages than the average mechanic, and the greatest good will come to wholesome organized labor and to individuals through individual merit.¹

The committee further reports in favor of evening schools (general, industrial, and trade), half-day schooling each week for apprentices and other workers where the employer is willing to pay the regular wages while they attend school, and part-time schools. These schools are primarily to meet the needs of those now in industry. Similar schools are favored for girls and women, in which, besides industrial studies, home economics shall be given a large place. These several proposals constitute a highly important body of suggestions, which, if they are at all adequately backed up by the membership of the association, represent a great advance in definiteness of attitude toward industrial education. Whether or not we can wholly accept the program presented, I shall discuss in the conclusion.

In 1911 the committee on industrial education, having changed its personnel in part and studied the question further, reported again, this time very differently from their 1910 report. They no longer champion trade schools, but, as a consequence of German and other

¹ Proc. 15th an. conven. Nat. Assoc. Manufacturers, New York, May, 1910, pp. 259, 260.

European example, focus their attention and chief approval on industrial improvement schools. The National Association of Manufacturers, following their report, passed the following resolutions:

Resolved, That this association earnestly devote itself, with reasonable outlay of funds, to the promotion of industrial education, to the end that such education may be made available, as soon as possible, to every child who needs it.

Resolved, That we favor the establishment in every community of continuation schools, wherein the children of 14 to 18 years of age now in the industries shall be instructed in the science and art of their respective industries and in citizenship.¹

Unionists have been much criticized for their opposition to trade and industrial schools. They did not for a long time understand the situation clearly, and many do not yet do so. Generally speaking, however, the attitude of union men has steadily become more and more favorable, until the approval indicated in the New York-report has become a fact. The main stumbling block which prevented union approval of such schools was apparently the impression that their graduates were sometimes used as strike breakers, and that the atmosphere of the schools was often either hostile to unionism or not distinctly favorable. The charge that trade schools were used to displace skilled unionists by "half-baked" school boys, temporarily or permanently, caused unionists in many instances to regard them as "scab hatcheries." But if the graduates of trade schools are able to displace skilled laborers, does not this indicate that they are able to do the work required; and if so, do they not deserve the places? On the other hand, if they are distinctly inferior as workmen, why should the skilled workers fear them, and how can they, in fact, displace their superiors? I believe that no one answer to these questions is sufficient. Some of the work, doubtless, now done by superior workmen, masters of their trades, can be done substantially as well and at lower cost by inferior half-trained workmen who would be unable to perform many of the more difficult operations of the same trade.

The skilled workmen fear partial displacement by some such half-trained workers, the chief advantage of whom to the employer is that they are cheap. Temporarily also an employer may secure poor workmen to tide him over for a few weeks as best they may, in order to win a strike. Further, the presence on the market of a large number of poorly trained or of half-trained workers, does, I think, tend, through the difficulty of dealing with individuals strictly on their several merits, toward a lowering of the standards and thus of the wages of the whole group of workers. But in the main I believe that those who possess developed skill need not greatly fear those who do not possess it, and that unionists are in no serious danger from the

¹ Rep. of committee on indus. educ., 16th an. conven., New York, May, 1911, Nat. Assoc. of Manufacturers.

graduates of trade schools, except where they are now maintaining a monopoly of skill.

But unionists may retort that trade schools have in the past flooded some trades and have supplied strike breakers to employers by virtue of the superior advantages furnished to enter those trades as compared with others. Private money-making schools are especially condemned on this score, and judgment is often reserved concerning even philanthropic trade schools till these have shown themselves at least not antagonistic to trade union principles and practice. Admitting the alleged facts, what is the remedy? It is better facilities for learning all trades, as far as obtaining these is feasible. Then the number and capacity of the intrants into the several trades will tend to adjust themselves toward that condition where men of equal capacity and opportunities will be in trades of equal attractiveness. Increase of freedom in industrial and trade education will tend toward securing the best men for the trades needing them and able to pay them most, and thus to offer them most attractions toward securing less able men for less important positions, and so on to the lowest rung of the ladder. If unionists are trying to maintain wages and conditions of work, by restriction of intrants into their trades beyond what is necessary to uphold the standards of skill and prevent such excessive influx as would lower the wage below what equal ability secures elsewhere, they are doing injustice to those who would otherwise enter the trades concerned.

It has been noted above that unionists favor general industrial much more than trade schools. Their attitude, moreover, varies greatly with the trade concerned. They favor evening schools, for these seek principally to help those already in the trades and involve no danger of unduly increasing the supply of workers. Correspondence schools for like reason meet their approval. Apprentice or factory schools they generally approve, because of their practicability and because there is no undue increase in the number of workers.

{ They are as yet opposed to cooperative schools, for reasons explained in the next chapter.¹

The unionists probably appreciate the disadvantage of a too narrow specialization more than employers do, for the resulting burden falls chiefly on them. Thus the committee on industrial education of the American Federation of Labor, in a report which gives unanimous support to industrial education, states the principle that "public industrial schools or schools for trade training should never become so narrow in their scope as to prevent an all-round shop training," and they further refer to "the injustice of narrow and prescribed training in selected trades by both private and public instruction."² To conclude this presentation of the attitude of organized labor, I

¹ Ch. 3, pp. 23, 24.

² Amer. Fed. of Labor Rep., 1910, p. 24.

³ Ibid., p. 13.

cite the main provisions of the Page-Wilson bill, now before the Federal Congress. This bill is based on the Davis bill,¹ called in the American Federation of Labor Report: "Labor's Bill for Congressional Enactment." The bill can not, however, be said to represent exclusively any class. In the form reached July 24, 1912, it provides for annual appropriations by the National Government to the States, of a total, when in full force, of \$14,780,000. Of this sum three million dollars is to maintain instruction in agriculture, industries, and home economics in departments of secondary schools. Three millions is to maintain instruction in the industries and home economics in separate secondary schools for the purpose. Three millions is to maintain instruction in agriculture and home economics in district agricultural high schools. Six hundred and forty thousand dollars is to maintain training for teachers of these vocational subjects in colleges, and one million dollars for similar training in normal schools. All the above grants are conditioned on the providing of a total of State and local appropriations equal to twice that of the Nation, in addition to any any costs of land or buildings. One million dollars is appropriated annually for branch agricultural experiment stations, and sums rising to a maximum of \$3,140,000, annually for extension departments of State universities; these grants being conditional on the spending of an equal amount in total by State and locality, for the same purpose, besides providing permanent plant. All these grants are conditional on supervision by the Federal Government, in cooperation with State boards for vocational education, and the maintenance of certain standards.

With this evidence of the favorable attitude of the highest body of organized labor in this country, let us turn to another phase of the question. I have so far been concerned with the need for industrial education, which is shown in the condition of industry in the country to-day, and which is reflected in the views of those most intimately acquainted with these conditions. I shall now take up the question of how far those needs have been met in the United States. What industrial schools have we, and what are they accomplishing for industry?

¹ Amer. Fed. of Labor Rep., 1910, pp. 20-22.

CHAPTER III.

INDUSTRIAL SCHOOLS IN THE UNITED STATES.

In the early days of our country, school and shop and farm were widely separated in function. Trades were so well taught by apprenticeship or by parents to their children that there was little need for the schools to dabble in industry and try to help in vocational training. These early conditions and similar ones preceding them, together with the scholastic ideals, are responsible for the rise of a tradition, especially among the schoolmen, that has been very hard to weaken—that the school should have nothing to do with industry. Its function was more general—to provide that mental equipment which is requisite in all walks of life. Thus the schools limited their efforts to the instruments of communication, and the superstructure reared on these, of history, literature, and science. As our society went through its marvelous development, and the apprenticeship system weakened, the schools maintained their traditional position, and the gap between them and industry became ever wider. Yet a variety of special types of schools arose from time to time which sought, apart from the regular public school system and its pinnacle of classical colleges, to bridge the chasm, to bring education into closer touch with life, and to minister to the needs of industry.

First among these were the privately endowed evening industrial schools, such as Cooper Union and the Mechanic's Institute of New York City, Franklin Union and Spring Garden Institute of Philadelphia, the Ohio Mechanic's Institute of Cincinnati, and the Mechanic's Institute of Richmond, Va. These schools, according to Dr. Charles R. Richards,¹ were almost all founded, or opened evening classes, during the fifties. They met with such a great demand for their services that similar public schools should have been called into the field, but the scholastic ideal was too firmly seated to make this feasible. The next development was the inauguration of institutes of technology, in the period of railroad and mining expansion following the Civil War. The Rensselaer Polytechnic Institute had, indeed, been founded in 1824, but its example was not emulated until 1865, when the Massachusetts Institute of Technology was established, followed within a few years by the Worcester Polytechnic Institute, Lehigh University,

¹ Richards, C. R.: Notes on Hist. of Indus. Educ. in U. S., in Nat. Educ. Assoc. Rep. of Committee on Place of Industries in Public Education, 1910, pp. 24-29. Compare also for facts below as to history of industrial education in the United States.

and Stevens Institute of Technology. These institutions were private, but were soon followed by similar ones of a public nature. The Morrill Land-Grant Act of 1862 has by its financial support, amounting to over \$16,000,000, aided about 60 State universities and other institutions which carry on agricultural and technological education.¹ Some of the agricultural colleges coming under this act, and situated in the South, now offer genuine trade training not leading to a degree. Another movement, which began in 1868 by the founding of Hampton Institute in Virginia, was the industrial education of the negro race, a movement carried on with signal success in a most difficult field. In 1870 industrial drawing was introduced into the schools of Massachusetts, from which the movement has spread, until now the subject is generally required in the cities and larger towns. Manual training had its first beginnings about 1870 under European influence, while manual training high schools began to be founded about 1880. This movement spread rapidly, entered the primary school after 1887, and is now very widely spread throughout the country. In 1872, the first school of design was founded in Lowell, Mass., as an aid to the textile industry. Stimulated by this example, other similar schools and several textile schools have grown.

Trade schools proper are of comparatively recent origin. The first, the New York Trade School, was founded on private endowment in 1881. During the next 20 years only two important schools which trained in the mechanical trades were founded. These were the Williamson Free School of Mechanical Trades, near Philadelphia, and the Baron de Hirsch Trade School in New York City. These schools, together with the Miller School, of Albemarle, Va., which adds trade to general training, and two schools in San Francisco are all privately endowed. Not till 1907 were public trade schools established, beginning with the taking over of the Milwaukee School of Trades by the city under State law. Since then, trade schools have been opened in a number of cities.² Within the last few years, also, general industrial or preparatory trade schools have been much discussed and have been established as parts of the public school system in Rochester, Albany, and New York, and in six other cities in New York State; in Newton, New Bedford, and other Massachusetts cities, and elsewhere. Within the past few years, also, the so-called half-time system, or cooperation between school and shop, has arisen.

Such, in outline, have been the successive stages of the rise of the agencies of industrial education, to the consideration of which I shall now turn. Uncoordinated one with another, they have grown

¹ Seventeenth An. Rep. Commissioner of Labor, 1902, pp. 19-24. (A chief source, with Richards: Notes, etc.)

² Cf. p. 34.

up spontaneously, chiefly as the result of private initiative. We have no *system* of industrial education in the United States. And despite the expenditure of a considerable amount of energy and money on those schools and phases of our schools which are industrial in aim, the result is, for the great mass of citizens, very small indeed. We pride ourselves on democracy in education, and yet our higher technical schools are far more fully developed, and far more nearly meet the country's industrial needs, than our lower schools. Indeed the lower schools are all but lacking; the schools of the country are, as related to industry, top-heavy. Our institutes of technology and engineering schools and universities, which train industrial leaders and technologists, compare favorably with the best in Europe. But so meager is the provision for the masses that Mr. A. C. Humphreys, president of Stevens Institute, states the following results of an inquiry conducted by the international committee of the Young Men's Christian Associations:¹ Of 13,000,000 young men in the United States between 21 and 35, only 5 per cent have received in the schools any direct preparation for their vocations; of every 100 graduates of our elementary schools, only 8 obtain their livelihood by means of professional and commercial pursuits while 92 support themselves by manual labor.

Of all the schools or parts of schools in the United States which have an industrial character the following will be omitted from consideration: Agricultural schools, schools for negroes or Indians, higher technical or engineering schools, and industrial art schools. The attempt will be made to discover what has been done to forward industrial education for the great masses in industry. First in order, let us examine the manual training classes and manual training high schools.

Manual training began in the United States with schools of secondary grade and percolated downward into the elementary schools.² The educators who introduced it desired, in the words of one of their leaders, Dr. H. H. Belfield—

to offer to boys what was called a more "practical" education than that offered by the ordinary high school; while avoiding a trade school, to give the boy an acquaintance with the forces and conditions of modern life, to give him the use of his hands or, as Dr. Woodward phrased it, "to put the whole boy to school."³

Educators have quite generally regarded manual training as another mode of cultural training and as a means of formal discipline, valuable to train the observation and reasoning powers and to strengthen the will. "The manual-training high school," according to the National Education Association committee, "has never claimed to fit boys

¹ Nat. Soc. for Promo. of Indus. Educ., Proc. 3d annual meeting, Bull. No. 10, p. 23.

² Nat. Educ. Assoc. Rep., pp. 80-115.

³ Ibid., p. 86.

directly for industrial pursuits.”¹ A succinct definition states that a manual-training high school is “a high school with a course in manual training in lieu of Latin and Greek.”²

The records of graduates of these schools show that they do not train for the trades to an appreciable extent. Their graduates follow the most diverse lines, just as in any other high schools, as business and the professions, while a number go on to the higher technical schools and a number enter trades. According to the Massachusetts commission, out of 2,437 manual-training school students whose records were available but 52 were in mechanical trades. Further, the committee of the National Education Association declare that “with few notable exceptions, practically all of the existing industrial and technical high schools now operating in the United States as parts of the public-school system should be classed as manual-training high schools,” according to the definition above, and not as technical high schools whose purpose is distinctly vocational, the training of industrial leaders of the lower grades. The general public expected from this movement more practical industrial results. These have not been forthcoming; but manual training has made for itself an enviable place in our system of general education, furnished its students a wider outlook from which to choose a vocation, and commended itself to large numbers of people. It is now probably best that the movement be continued as it is, and that the industrial function be accomplished by other schools, independent of our existing system in whole or in part, and managed primarily by men in close touch with industry.

Much more hopeful for industry is the recent inauguration of apprentice schools in shops.³ A number of larger manufacturing and railroad companies, to increase the efficiency of their employees or to train up a generation of workers, have instituted schools in which their apprentices are taught such subjects as mechanical drawing, reading of drawings, shop arithmetic, strength of materials, mechanics, electricity, testing of machines, etc. The detailed arrangements differ from shop to shop, but in general the teaching is very practical, is intimately connected with the shop work, and is carried on by the method of concrete problems. The apprentices are usually paid for their time while in the school, just as in the shops, and are held to the same standards of attendance and discipline. Special teachers in many cases instruct the boys, generally in the school, sometimes in the shop also; the course of study is often carefully laid out by the consulting engineer or by some member of the firm. In some cases, as in the General Electric Co.’s plant at Lynn, Mass., a special apprentice training room is set aside for the purpose, and here the boys work at machines isolated from the rest of the

¹ Nat. Educ. Assoc. Rep., p. 95.

² *Ibid.*, p. 87.

³ Wright, pp. 28-56; Nat. Soc. Promot. Indus. Educ., Bull. No. 11, pp. 72-81.

factory. In some cases shifts of boys are kept alternately at the machines and in the school, thus obtaining the fullest possible utilization of the machines and of the services of the teacher. Usually only a few hours a week are spent in the school, though in some cases as much as half the time is so occupied. In the shop, the apprentices are usually advanced from machine to machine or department to department as fast as they become proficient, or at stated intervals. Sometimes they are required before leaving a machine to instruct another boy concerning it. In some few cases employees other than apprentices may also enter the apprentice classes. Prizes or other recognition of good work are often granted as useful stimuli.

Some companies conduct the schools largely to provide future foremen, designers, superintendents, and technical experts. In some cases examinations are held for those who desire to become apprentices, and also to determine proficiency on completion of the course; in others a common school education and physical fitness are required for entrance, while graduation or proficiency is attested by the personal knowledge of the teacher. The popularity of these apprenticeships is attested by the fact that in the better companies, at least, there are many candidates on the waiting list, and the companies can select the best fitted boys. Trial periods are the rule, as in most apprenticeships, and then the signing of a regular indenture. The school course usually lasts as long as the apprenticeship, and a good grade of work is required for its successful completion. The boys usually appreciate the superior advantages they receive for a thorough trade training and are often enthusiastic for their company. Some of the companies which have adopted systems of this sort are (with number of hours of schooling given a week): The Fore River Shipbuilding Co. (18 hours for 7 months); the New York Central lines (4 hours); the Santa Fe Railroad (4 hours); the Westinghouse Electric & Manufacturing Co., East Pittsburgh, Pa. (4 hours); the International Harvester Co., Chicago, Ill.; the Allis-Chalmers Co., of Cincinnati, Ohio; the General Electric Co., West Lynn, Mass. (7½ hours); the Lakeside Press, Chicago, Ill. (21 hours, 2 years out of 7); and the Solvay Co., Syracuse, N. Y. (alternate weeks in school and shop).¹ These companies and others which have adopted the system in some form are in the main large companies, and so far with them the system has worked well.

This suggests the query whether the system is applicable to companies of any size or only to large firms. The smallest number in any apprentice school conducted by a manufacturing company of which I have data is 28, the largest number 206, while the average is 69 apprentices. The railways show a much lower average, owing to the fact that at most division points there are but few apprentices;

¹ These data chiefly from Wright, pp. 22-56.

61 railways have 8,367 apprentices in 406 schools, or an average of not quite 21 to a school. The hiring of a special instructor for so few apprentices would be too expensive and is not strictly necessary; for these reasons the shop superintendent, chief draftsman, or other regular employee generally conducts the instruction and supervision, and in some cases the instruction covers little more than mechanical drawing. So far as the present experience with shop schools goes, it seems that instruction of comparatively few apprentices is feasible, that in most cases a small or medium-sized shop can not afford a special instructor, and that the apprentices thus lose in thoroughness of instruction. As to the smallest shops, the plan does not seem feasible for them. Even a class of 15 or 20 apprentices is not possible except in an establishment of from about 60 to 400 workers. In some industries, as in the building trades, the system is not applicable at all. The system is new, however, and may become a good solution of a part of the general problem. Railroad men are especially inclined to hold that no trade school can meet the highly special needs of their industry.

A modification of the system of apprenticeship schools in the shop¹ is found in an apprenticeship system where instruction is given outside of the shop but under the direction of the employers. The North End Union School of Printing, of Boston, is owned and conducted by an association of master printers. It offers one year of trade schooling at a cost of \$100 to the boy, to take the place of the first two years of an ordinary apprenticeship, and then apprenticeship for four years to some master printer at a guaranteed wage steadily increasing from \$9 to \$18 a week. Some other firms "encourage" boys to attend night schools, but neither require such attendance nor offer adequate incentive to them to do so. Such systems are too weak to accomplish much.² The Baldwin Locomotive Works and some other firms, however, require their apprentices to attend evening school and study mechanical drawing and other courses in line with their shopwork.³

Akin to the last-named type is the part-time system, or cooperation between school and shop.³ In this type the employers and a school or schools, usually public, divide the time of the apprentices according to different proportions, the bulk of the time usually being spent in the shops. The instruction given is technical, relating to shopwork, though it may include also some of a business and of a civic nature. In Beverly, Mass., the apprentices of the United Shoe Machinery Co. alternate, in two groups of 25 each, between the Beverly (public) industrial school and the shop. The boys are paid half the regular piece price for their work, and the company assumes the cost of the shop. In Fitchburg, Mass., apprentices of mechanical trades

¹ Wright, pp. 57-67.

² Ibid., pp. 56-57.

³ Nat. Soc. Promot. Indus. Educ., Bull. No. 11, pp. 111-115.

are given one full year in the high school, followed by three years of alternate weeks in the shops of manufacturers as apprentices and in school. In Cincinnati, Ohio, apprentices are taught in an improvement or continuation school of the city for 4 hours a week and 48 weeks in the year.¹ "The school teaches the three R's, civics, mechanical drawing, blueprint reading, and good citizenship. Much attention is given to shop mathematics." Beyond the scope of the present inquiry, but illustrative of the part-time system applied to engineering education, is the cooperative plan between the University of Cincinnati and the manufacturers of that city, by which engineering students who are accepted by the manufacturers are enrolled also in the university, and regularly indentured for a six-year course, in which shop and school are closely coordinated.² During college term they spend alternate weeks in school and shop, and when college is closed they work regularly in the shops. They are paid for their work in the shops at rates which total about \$2,000 for the six years. Though spending only half the time at the university that is spent by those taking the regular 4-year engineering course, the apprentice students did three-quarters of the work done by the latter, with grades 25 per cent better. This system for training industrial leaders is, so far as it has gone, a success.

To the extension of such cooperative systems between public schools and shops, trade unionism offers strenuous objection. In the report of the special committee on industrial education of the American Federation of Labor, the following statements are found as to this system:³

The manufacturer is not obliged to take any boy or to keep any boy. On the other hand, the high school is obliged to educate all duly qualified boys, to give them all that the city provides. * * * The people have no hand in this plan. * * * Under this plan the veto power over the boy's right to public industrial education is in the hands of the manufacturer.

The committee points out that a manufacturer could refuse to take or keep a boy who should take a definite stand for trade unionism or whose father should have done the same; that the cooperation would so bind the hands of the teachers that they could offer but little resistance to inculcation by the employer of antiunion principles, and that a spirit of undemocratic exclusiveness would be apt to arise among the accepted boys against their excluded fellows. To sum up, they state that:

Any scheme of education which depends for its carrying out on a private group, subject to no public control, leaves unsolved the fundamental democratic problem of giving the boys of the country an equal opportunity and the citizens the power to criticize and reform their educational machinery.

¹ Nat. Soc. Promot. Indus. Educ., Bull. No. 11, p. 115.

² Amer. Fed. of Labor Report, pp. 11, 12.

³ Wright, pp. 54ff.

These objections must be borne in mind, but it seems as if no scheme for training our future workers wholly or in part in the shops could be made independent of the selection of those trained by the employer. The conclusion would seem to be that, if the cooperative system for industrial training increases in extent, other means of industrial training should be also kept open to our boys.

Despite recent increases in the number of public technical and trade schools, private schools, which are first in the field, are still the more numerous and exercise the greater influence on the industrial situation. Of these the New York Trade School, founded in 1880, was first in offering short trade courses in the building trades, taking day students about four months for completion; while the Baron de Hirsch School, also in New York City and founded in 1891 for Hebrews, offers short day courses of five and one-half months, leading to the position of helper. In San Francisco, the Wilmerding School of Industrial Art for Boys, established in 1900, offers four-year courses in the building trades, with the practical side to the fore and occupying the entire last two years. Other schools privately endowed like the above exist in small numbers and offer courses varying in length from the short four or five months' courses to those lasting several years. The latter include generally a modicum of general academic training and a larger share of technical work. Some, as the Manhattan Trade School for Girls, are exclusively for girls.

In very recent years States and cities have taken up the establishment of trade schools¹ and founded the following: State trade schools, at New Britain and Bridgeport, Conn.; the Worcester Trade School, Worcester, Mass.; the Wisconsin State Mining Trade School, at Platteville, Wis.; Saunders' School of Trades, Yonkers, N. Y.; the Portland School of Trades, Portland, Oreg.; the Philadelphia Trades School; the Columbus Trades School, Columbus, Ohio; the Milwaukee School of Trades for Boys; the Girls' Trade School, of Boston, Mass.; the New York Trade School for Girls, Syracuse, N. Y.; and the Milwaukee School of Trades for Girls. These schools do not differ materially from the privately endowed schools whose example they follow. A number of private trade schools run for profit are also in the field, offering generally very short courses of three or four months. This type of school assumes to train journeymen, and meets the most determined opposition of the trade-unions.

A similar group of day technical schools, mostly private, ministers to a more general need.² There is much ambiguity in the use of the terms "industrial" and "technical" as applied to schools, and they are often used interchangeably. Industrial schools are in the broadest sense any and all schools which have a function or purpose

¹ Nat. Soc. Promot. Indus. Educ., Bull. No. 11, pp. 22-61; and 25th An. Rep. Commis. of Labor, 1910, Indus. Educ., pp. 91-141.

² Nat. Soc. Promot. Indus. Educ., Bull. No. 11, pp. 52-72.

directly related to industry; in the narrower sense they are those schools which train in the general aspects or bases of industry, as drawing, mechanics, and applied mathematics, but do not specialize their training to the extent of teaching specific trades. Technical schools are those which instruct in the technic of industry in general or of special industries, particularly the latter. Thus a polytechnic school is one which concerns itself with the special technics of a number of industries. A technical school aims to teach the science as distinguished from the art of a trade or industry. It aims primarily to show the student the meaning of the processes studied rather than to train him to dexterity in their execution. Many schools are part technical, part trade schools, but the functions are more or less distinct. No school is a trade school proper which fails to teach the pupils to perform the actual processes of the trade, and merely makes clear to them the meaning of those processes.¹ Thus a trade school is primarily concerned with the art as distinguished from the science of a trade or industry. A trade school need not attempt to take the place of an apprenticeship.² The textile schools, established in Massachusetts under State law of 1895 and elsewhere are technical and not trade schools, and expect practical experience in their pupils, either before or accompanying their school work.

Since 1906 a new type of school has arisen rapidly. This is the general industrial preparatory trade or vocational school, of which there were 12 in 1910, all public,³ 9 of them founded in 1909, and 8 in New York State. These schools aim to attract and retain in school for two or three years those pupils who would otherwise leave at the completion of the common-school grades or before, to turn their attention toward the opportunities offered in the manual trades and to furnish such basic industrial training as will provide industrial intelligence and make for rapid advancement in subsequent apprenticeship. The work is usually about equally divided between classroom and shop and becomes more specialized toward the end of the course. It is this class of school which was strongly desired by both employers and employees, according to the New York report quoted above.

Such schools would aim to instruct their pupils in the elements of both theory and practice of those processes fundamental or common to a group of trades. Such groups of trades or industries (or workers), important in the United States, are: (1) Woodworking industries; (2) iron and steel working industries; (3) bookbinding and pasting trades; (4) printers' trades; (5) leather-working industries; (6) textile industries (factory type); (7) clothing trades; (8) engineers and firemen (and representing "less evident possibilities of approach for

¹ See preface, p. 7.

² An opposing view is presented in 25th An. Rep. Com. Labor, p. 15.

³ Nat. Soc. Indus. Educ., Bull. No. 11, pp. 2-22.

the intermediate industrial school"); (9) stone-working industries; (10) clay and glass industries (using furnaces); (11) paint, paper, and plaster industries; (12) food manufacturing industries; (13) tobacco industries; and (14) miners and quarrymen.¹ The existing schools of this type have naturally tended to specialize their efforts to meet the needs of industries locally important.² This will doubtless continue to be done, as there will be neither need nor usually means for such a school to train in all of the groups of trades mentioned above, or similar ones.

More important than any of these types of schools in their present influence on the industrial situation, whatever the future may bring, are the numerous evening schools.³ These are of many kinds, public, privately owned, and profit seeking, and both technical and trade schools or a combination of the two. Most of the day trade and technical schools, such as those above referred to, also give evening trade or technical courses or both. These courses are in part improvement courses, in that they are largely attended by those already engaged in the trades, and desiring either to supplement their practical shop experience with some scientific knowledge of the technic of their industry or to add a general shop training to the narrower training on a single machine, or in a single department, that has been theirs. Evening schools are subject to the serious limitations that the students are tired from the day's work, and that any thorough course must occupy a long period, as several years, and few persevere through a long course.⁴ Prof. Sadler, who is thoroughly conversant with the numerous evening schools of England, says that about half of the students attend only about half of the time. Notwithstanding, evening schools are in great demand; and for short trade and technical courses, chiefly to supplement some knowledge already obtained of a trade, they have a great and largely unoccupied field of usefulness before them. Prof. Richards, director of Cooper Union, states that "in Europe evening schools are the main instrument of industrial education."

Deserving special mention among evening schools are the classes in the many branches of the Young Men's Christian Association. According to the Department of Commerce and Labor, there were

¹ Nat. Educ. Assoc. Com. Rep., pp. 65-68.

² Nat. Soc. Promot. Indus. Educ., Bull. No. 11, pp. 8-22.

³ *Ibid.*, pp. 81-111; 25th An. Rep., pp. 211-245.

⁴ John L. Shearer, president of the Ohio Mechanics Institute at Cincinnati, voices thus strongly a general view of those who know the facts: "For moral reasons I can not sanction the establishment of departments in our public schools which make it optional for a child to attend either in the daytime or in the evening. The temptation becomes too great to utilize the child's ability for commercial purposes, and the consequences of this irregular training become a serious burden upon the public in later years. I have not found that evening classes for children are productive of good results, but rather leave in their train many serious evils. This brings me then to what I consider the legitimate sphere of the night school. It should be a good school for adults and not for children."—Rep. Wisconsin Comm. on Indus. and Agric. Training, 1, p. 48.

in 1902, 6,000 men and boys enrolled in their classes; while in 1910 there were 50,000 employed men and boys receiving instruction under 2,250 paid teachers, two nights a week for half the year, in 140 different commercial and vocational subjects.¹ The students bear in membership and tuition fees, a part of the cost of instruction. The technical courses are such as mechanical, architectural, and freehand drawing, physics, chemistry, electricity, plan reading and estimating, concrete and steel engineering; while the trades taught include among others carpentry, pattern work, forging, and tool making, machine shop practice, and plumbing.

Closely akin to the evening schools, and to be classed with them as performing the same function so far as the technical aspect is concerned, are the correspondence school courses which have attained such wide publicity in recent years.²

One of the chief of these states that its purpose is to teach the theory of engineering and of trades to those actually at work in those activities, and the other schools perform a similar function. They are thus distinctly technical schools. They are usually private, profit-making enterprises. In two leading correspondence schools the tuition fees vary from \$20 for the shorter to \$120 for the longer courses. So great has been the demand for their services, not only in places where there were no other technical schools, but where these were available, that one of them had enrolled 300,000 students, in 1902, and had enrolled up to 1910 a total of over 1,300,000. The method of these schools, though ridiculed at first, has proven to be quite effective. Much of its success has been due to the division of all subjects into short lessons, stated in simple, explicit language, and illustrated whenever necessary, forming each a unit by itself, and containing what is necessary to understand the next lesson, and no more. Competent instructors correct all written and drawn work, and give special attention to those who need it. Where the number of students permits it, traveling instructors now meet the students in a locality for an hour every week or every two weeks. To complete the longer courses usually requires five or six years, but graduation is not so urgent as in most schools, because the student is, as a rule, working at his trade while studying. The Union Pacific educational bureau for information has since 1909 supplied expert tuition without cost to its employees by mail. Trade-unions approve of this type of school, as they do of all schools designed to increase the efficiency of those already in trades, as distinguished from those which increase or which they think increase the number entering the trades.

Industrial schools for girls are not numerous, and are mostly private philanthropic institutions. Their work usually includes

¹ Nat. Soc. Promot. Indus. Educ., Bull. No. 11, p. 101.

² 17th An. Rep. Com. Labor, pp. 223-234; 25th An. Rep. Com. Labor, pp. 349-360.

domestic science, whose purpose is oftener to prepare for housekeeping than for wage earning. The distinctly trade courses are almost entirely limited to dressmaking and millinery¹ showing often a lack of study of vocational opportunities open to girls and women.

Having now completed our brief survey of existing schools, let us glance for a moment at the tendencies of recent State legislation with regard to industrial education of various sorts.² Massachusetts, New York, and Connecticut have enacted laws providing State aid to free public industrial or trade schools; New Jersey has legislated for State aid for free privately established schools; and Wisconsin allows cities to establish trade and industrial schools at their own expense.. These States are in the lead in respect to industrial education legislation, but a variety of other legislation in other States has been passed in very recent years. Thus, according to Bulletin No. 12 of the National Society for the Promotion of Industrial Education, the following State legislation is now in effect, covering the field of free public secondary industrial education of a practical type, as distinguished from a cultural:³

States legislating on and giving aid to industrial education.

	Number of States.	States giving aid.
States not legislating with respect to some type or types of practical activities.....	19	6
States legislating with respect to practical activities.....	29	16
States providing for technical high schools.....	10	1
Providing for manual training.....	18	9
Providing for training in domestic economy.....	11	11
Providing for agricultural training.....	19	13
Providing for industrial and trade training.....	11	8
Providing for all the practical activities.....	3	2

So recent is the bulk of this legislation that it can be said: "The first State subsidy for agricultural or trade training of secondary grade of any significance was not granted until after the close of the last century."⁴ Some of this legislation is in advance of its utilization by the localities. The authors of the bulletin above referred to declare:

The further development of public vocational education would seem to be dependent in large measure upon legislation providing for State initiative, State subsidy and a reasonable degree of State control.⁵

One item of recent legislation would seem to call for note and that is the Ohio compulsory attendance law of 1910 for part-time schools. The part of the general compulsory attendance law which deals

¹ 25th An. Rep., p. 263.

² Nat. Soc. Promot. Indus. Educ., Bull. No. 12, Legislation upon Indus. Educ. in U.S.; texts of the recent laws are found in 25th An. Rep., pp. 499-518.

³ Nat. Soc. Promot. Indus. Educ., Bull. No. 12, pp. 24ff.

⁴ *Ibid.*, p. 26.

⁵ *Ibid.*, p. 27.

with this feature declares that, in school districts where part-time classes are provided for the instruction of youths over 14 who are engaged in regular employment, a new obligation to attend such schools for not over eight hours a week in the daytime (between 8 a. m. and 5 p. m.) during school term is imposed on all youths under 16 who have not satisfactorily completed the eighth grade of the elementary schools, until they shall have completed the eighth grade or have reached their seventeenth birthday.¹ The success of this new experiment, and the way different classes receive it, will be watched with much interest.

Superior in scope even to the Ohio law is the Wisconsin compulsory improvement school law of 1911, according to which boys and girls between 14 and 16 who are working under legal permit must attend an improvement or other school established for the purpose, wherever such school exists, for five hours a week and six months in the year. Employers must release their youthful workers so obligated for a number of hours equal to the hours of compulsory school attendance. This law, based on German experience, is of the type recommended in this study. It is but an opening wedge, for the compulsion is dependent on the action of the locality in establishing the proper school, and extends only till the child is 16 years old. Notwithstanding these limitations, inherent in any pioneer law of this sort, the act marks Wisconsin as the State which at present leads the van in the movement for really popular industrial education.²

¹ Nat. Soc. Promot. Indus. Educ., Bull. No. 12, p. 35.

² See Appendix B. The Wisconsin Apprentice Law of 1911. The text of the compulsory improvement school law is reproduced at the close of this appendix. The apprentice law and the school law should be studied in conjunction with each other.

CHAPTER IV.

RESULTS AND OMISSIONS OF OUR INDUSTRIAL EDUCATION.

What are the net results of our present industrial education agencies to date? In number of students raised in proficiency the results are small for a country so large as ours. In quality of work some institutions have done very well. The following are concrete results in terms of positions and wages: The income received during five years by apprentices of the North End Union School of Printing, above referred to, is \$2,800. Subtracting the \$100 for tuition the first year, the net amount is \$420 greater than that earned during the same period by a boy taking a regular shop apprenticeship with no trade schooling.¹ The graduates of the Baron de Hirsch Trade School of New York City, with short trade courses of about five and one-half months, increase their earning capacity by the course from an average of \$5.39 to an average of \$7.54 a week, and usually reach journeyman grade in two or three years.² The Manhattan Trade School for Girls, with courses of about one year, sends out girls who earn from \$3 to \$8 a week at once and \$4 to \$12 a week after two to four years in their trades, with a few operators reaching \$25.³ The graduates of the Philadelphia Trades School, with a three years' course, begin work at an average wage of \$9.50 a week.⁴ Of the Williamson Free School for Mechanical Trades, all the graduates to date, 726 in number, are in the trades which 95 per cent of the graduates enter at once at 60 to 100 per cent of full journeyman's pay.⁵ About half of the graduates of the Wilmerding School for Industrial Arts for Boys, in San Francisco, have been accepted on the completion of their four years' course as full journeymen, while others have received two to three years' credit toward the completion of an apprenticeship.⁶

Concerning technical schools, the earnings of older graduates of the Hebrew Technical Institute of New York City are \$60 a week,⁷ while the graduates of the California School of Mechanical Arts are given credit for two to four years of apprenticeship and advance rapidly.⁸ The Massachusetts commission's report shows that in the machine trades shop-trained boys rise from \$4 to \$12 a week by the time they

¹ Wright, pp. 57-60.

² Nat. Soc. Promot. Indus. Educ., Bull. No. 11, p. 41.

³ Ibid., p. 49.

⁴ Ibid., p. 28.

⁵ Ibid., p. 45.

⁶ Ibid., p. 35.

⁷ Ibid., p. 65.

⁸ Ibid., p. 60.

are 25 years old, while boys trained in technical schools rise from \$10 to \$30 a week.¹

The above facts are presented here as indications, but not as proofs in any exact sense, of what these schools have accomplished. They show that such schools can accomplish and have accomplished useful results, and specifically that trade schools can considerably shorten the necessary period of apprenticeship and make for superior ability. From the other types of schools increased efficiency and promotion have come in a great number of cases. And yet the schools are so few, the need so great, that public initiative is urgently demanded. Our provision for industrial education in this country is still mainly private and may be summed up as good, though not ideal, means for training industrial leaders with almost no industrial training for the rank and file.

What, in brief, can we legitimately and reasonably expect that industrial education will do for our workers, for our industries, and for the whole people? In a few, and perhaps an increasing number of cases, we can expect higher skill and better products to result than had before existed. Such results are most likely in the broad field of art and design in industry. The main direct result of widely extended industrial education will be the wide diffusion of industrial intelligence, more or less general in its nature, and of specialized skill in a great variety of lines. That the proper types of schools can impart these qualities has been proved both in the United States and abroad. This industrial intelligence and specialized skill can hardly be expected, in the near future at least, to surpass in quality that now found in our midst; the gain will be rather in quantity. A larger number and proportion of our industrial population than at present will be skilled workers.

But can places be found for this multitude of skilled workers? Will not many of them, with the training and outlook of skilled men and women, be forced to labor at work below their abilities? Are not the relative needs of industry for skilled and for unskilled workers, as well as for different grades of skilled workers, fixed? And does not this limitation of the needs of industry for skilled workers doom a large portion of our population (substantially as at present) to unskilled or relatively unskilled positions throughout their lives? In recent years especially the demands of industry seem to be for many unskilled (or but slightly or very narrowly skilled) and for a few only of thoroughly skilled workers. If this limitation were rigid, our efforts along the line of strictly industrial education should be limited to the training of only enough workers to fill the skilled positions, each with a grade of skill limited to the possibilities of his posi-

¹ Rep. of Mass. Com. on Indus. and Tech. Educ., Apr., 1906, pp. 67-69.

tion. The situation is, however, more hopeful than this. Many unskilled or slightly skilled workers are now demanded by industry chiefly because their labor is cheap, while our manufacturers would gladly employ more skilled workers could they secure them. For the country as a whole, their numbers are at a given time fixed. Individual employers can secure more skilled workers only by paying rates of wages which often they can not afford. If, then, industrial education becomes general in the United States, the increase in the number and proportion of skilled workers available will force a readjustment of industries by the mere fact that such a readjustment will become profitable to employers. They will find it worth their while to contract the number of unskilled workers whom they employ and to increase the number of skilled workers. To the individual employer the motive for this change will be pecuniary; he will have to pay relatively more than before for unskilled labor, less than before for skilled. Further, there are some who hold that, aside from the cost of labor, the modern industrial army of few captains and many privates will undergo a transformation and that many skilled workers of various grades—the noncommissioned officers of the army—will come to be demanded. Such an increase in skill required of many of its workers has accompanied the modern tendency toward intensive cultivation in agriculture. It may yet open broad opportunities for the average man in industry.

With the probability then of increased opportunity for skilled workers, what advantage will those workers derive who now have to enter unskilled work, but who, with large opportunities for industrial training, can become skilled workers? We may confidently expect that increased opportunities for industrial education of the right kinds will raise the real wage of vast numbers of our people and greatly increase the sum of well-being in the country. All classes will benefit, directly or indirectly, by these educational opportunities. It is a corollary of modern economics that it is well for a man or for a group to have prosperous neighbors rather than poor. Employers will benefit by a larger supply of skilled labor, thus increasing their ability to compete with foreign producers both at home and abroad, and enlarging their home market as a result of cheaper products.

Chief among the defects of our present industrial schools are their defects of omission. A large and important field is all but unoccupied by them. In 1905 a report was made by the Commission on Industrial and Technical Education of Massachusetts which revealed a striking condition of the working children of the State, both boys and girls, which is probably largely true also of other highly industrialized States.¹ About five-sixths of the children, it is found, leave school during the seventh and eighth grades to take up industrial

¹ Rep. Mass. Commis. on Indus. and Tech. Educ., 1906, pp. 85-93.

pursuits.¹ These children, about 25,000 in number, of the ages of 14 and 15, go for the most part into industries of the lower grade, which, indeed, are almost the only ones open to them. To quote from the report, "33 per cent of the children of this State who begin work between 14 and 16 are employed in unskilled industries, and 65 per cent in low-grade industries, thus a little less than 2 per cent are in high-grade industries." The low-grade skilled industries in which child labor is much used are less desirable also than those where it is not. The class of family seems to have little to do with the trade or industry into which the child enters, nor is the industry much affected by family connections, except in the cases of a few desirable apprenticeships. "All grades of families are represented by their children in all grades of industries."

The employers in practically all real trades that offer a future do not want the boy or girl until he or she is 16 years old at least, and in many cases not until he is 18. This evidence is confirmed by the New York report above referred to, as well as by other sources. Trade unions, in most cases, do not impose a higher age limit for apprentices than is acceptable to employers; in fact, the union minimum is usually below what the employer will accept for those industries where a bona fide apprenticeship holds. In most of the industries into which Massachusetts children of 14 and 15 go, however, there is no apprenticeship system, but merely child labor. Not only is it very hard for a child below 16 to obtain employment in one of the better industries, but the beginning wage in these industries is so low that few children will accept it, even when they may. The low-grade industries pay more at first, but reach their maximum in three or four years as a rule, and thereafter offer no chance for advancement for any not specially trained. This maximum averages from \$7 to \$8

¹ The high proportion of pupils leaving school for all causes is best stated by the following figures from cities throughout the country contained in U. S. Bu. of Educ. Bull., 1911, No. 5: Age and Grade Census of Schools and Colleges, by George D. Strayer, from which the following figures are quoted (pp. 135-136): Median per cent of the largest age group (assumed to equal the number of pupils entering all grades each year) found in each grade (data obtained December, 1908, from 317 cities):

Grades of pupils.	Cities of over 25,000.		Cities of less than 25,000.	
	Boys.	Girls.	Boys.	Girls.
Seventh year.....	(55) 65	75	70	70
Eighth year.....	(42) 50	60	50	60
Ninth year.....	47	50	47	45
First year high school.....	35	45	40	50
Fourth year high school.....	10	16	12	20

Studies by graduate students in Teachers College, Columbia University, as quoted in the above report, show that a fair estimate of the number of repeaters would be 10 per cent of the total number in the seventh, and 8 per cent in the eighth grade. The figures above in parentheses represent for two cases the estimated actual number of pupils entering the given grades. On the whole, these figures confirm those of the Massachusetts report, though indicating that the country as a whole keeps its children longer in its schools than the Massachusetts cities studied.

a week, with \$9 to \$10 as the upper limit. The training offered the child in these low-grade industries, in which seven-eighths of the children below 16 work, is negligible, and from the standpoint of their development the years can be called, as they are called in the report, "wasted years." The net weekly contribution of the child to the family through this work, above car fare, clothes, etc., is estimated to average but little over \$1.50. The boy or girl who does not start work till 16, though commencing at a lower wage, is able to reach the wage of his fellow of the same age who started at 14 in two years and has probably earned a total to equal that of him who had the start in four years. The younger children change frequently from mill to mill, and once having left the public school are not to be tempted back by any attractions now offered there, but rather drift around aimlessly.

The gain thus of this early work is negligible in training and but very slight in money. Yet the families, in most cases, are not so poor that necessity drives them to set their children to work at the earliest opportunity. The experts of the commission estimate that 76 per cent of the 3,157 families investigated would be able to give their children the advantages of industrial education if persuaded of its advantage. Industry has shown that it does not greatly desire the children so young, as indicated by the meager wage and opportunities it offers. The children are not mature enough to undertake any responsible work; these are the years best suited for the training of the child, and education at this time along lines that relate closely to the child's future will richly pay for itself in the future both in money and in efficiency. The testimony of the investigation from the evidence of case after case is that, except among the poorer foreign families, the child insisted on leaving the school, the parents objected, but the child had its way. What then draws the child, with so uniform and powerful a force, from school to mill? It is his awakened activity, tired of the conventionality, the unreality of the schoolroom; eager to see more of the world, to live in the active life of the world, to stand on his own feet and earn money by his own activity; to live less in terms of words and books, and more in terms of things and men.

Where does the responsibility for this condition lie and where the remedy? In the schools. The schools fail to hold the child even when his work is worth little to himself or others, because they have even less to offer that in any way attracts him. Of 35 or 40 school superintendents interviewed throughout the State, all but three thought that the fault was in the school system. Would industrial schools succeed any better? All experience so far indicates that they would, if there was enough of the practical and vocational about

them to arouse the child's interest, and a promise of a better opportunity in the world of industry to stimulate his imagination and diligence. The results of the Massachusetts report have opened the eyes of many to the likelihood that the child is likewise limited in other States also.¹ The need for industrial schools to redeem these "wasted years" and make them fruitful is imperative. Industry is conspiring with educational forces to make the present position less and less tenable, for some of the industries now employing children—notably the woolen industry (classed as low-grade skilled)—are dispensing more and more with their services. The result is that young children are being forced more and more into juvenile employments and into the lower-grade industries, "blind-alley" employments which offer no future. Before 14 the child's productive capacity is negligible, and between 14 and 16 it is capable of only the simplest processes. The need indicated is for preparatory trade or vocational schools, which shall teach children between the ages of 14 and 16 the elements of practical handling of tools and industrial materials, and of the principles underlying industries, each student specializing in a certain type or group, as metal working, wood working, etc. This type of school is what is called the general industrial, preparatory, trade, or vocational, and is the type so strongly approved of by both employers and unions in New York State.

Another important investigation has recently been made under the direction of the United States Commissioner of Labor, entitled "Conditions under Which Children Leave School to Go to Work."² A survey of the main conclusions of this report will support the data and conclusions of the Massachusetts report and show further need of industrial education, as well as for vocational guidance, for the boys and girls affected.

An intensive study was made of 622 children (below 16 years old) who had left school and gone to work in seven different typical smaller cities in Rhode Island, Pennsylvania, South Carolina, and Georgia. More of the children left school at 14 years of age than at any other age (281 out of 620), the next largest number at 13 years (151), then came 15 years (81), 12 years (53), and lesser ages.³ The following table summarizes the causes for leaving school by the children.⁴ Generally, several causes cooperated to this result. In such case the predominant cause only was given.

¹ "The report of the Wisconsin Bureau of Labor for 1910 shows that only 12 per cent of the children are in positions to learn a trade. These, our report says, are in the building trades, millinery, dressmaking, trunkmaking, and tinning." In some of these, probably, "only a slight division of a trade can be learned."—Rept. of Wisconsin Commis. on Indus. and Agric. Training, 1911, p. 40.

² Vol. VII, 1910 (61st Cong., 2d sess., S. Doc. No. 645), of Report on Conditions of Woman and Child Wage Earners in the United States, in 19 volumes.

³ Ibid., p. 35.

⁴ Ibid., p. 44.

Causes for children leaving school to go to work.

Causes for leaving school.	Number of children.	Per cent.
Necessity:		
Earnings necessary to family support.....	169	
Help needed at home.....	6	
Self-support necessary.....	11	
Total.....	186	30.0
Child's help desired, though not necessary:		
In family support.....	140	
To buy property.....	12	
In home work.....	14	
To earn money for education of self or relative.....	7	
Total.....	173	27.9
Child's dissatisfaction with school:		
Tired of school.....	35	
Disliked school (general manner of life there).....	54	
Disliked teacher.....	31	
Disliked to study.....	16	
Could not learn.....	10	
Not promoted.....	5	
Too big for class.....	14	
Total.....	165	26.6
Child's preference for work:		
Work preferred to school.....	44	
Spending money wanted.....	8	
Association desired with friends who worked.....	9	
Total.....	61	9.8
Other causes:		
Ill health.....	16	
To learn a trade or business.....	6	
Company pressure (exerted on parents).....	7	
Other (specified in detail in original table).....	6	
Total.....	35	5.7
Grand total.....	620	100.0

In cases classed under necessity the existence or absence of necessity was decided by the investigators on the basis of statements made by the family concerned, as to their finances. Usually it was considered that families having a per capita weekly income, after rent was paid and expenses for sickness and death met, of less than \$1.50 a week without the earnings of children under 16, could not unassisted keep their children in school; but that families with a per capita income of \$2 or more, after similar deductions, were able to do so. Those with per capita incomes of \$1.50 to \$2 as above were on the doubtful line, where the degree of thrift decided whether the child's earnings were necessary or not.¹ For all the cases where necessity was the chief reason for leaving school for work, trade or other industrial schools requiring attendance through the day are inapplicable. For these, as for other children at work, improvement schools of the type so widely found in Germany and recently initiated in Cincinnati and Boston might be adopted.

Those families desiring the help of the child, though that help was not strictly necessary, generally regarded work as a child's normal and natural occupation, and were indifferent to school attendance

¹ Vol. VII, 1910 (61st Cong., 2d sess., S. Doc. No. 645), of Report on Conditions of Woman and Child Wage Earners in the United States in 19 volumes, pp. 29, 30.

(sometimes hostile).¹ The chief need shown here was for more popular awakening to the importance and benefits of education.

Those cases classed under dissatisfaction with school and preference for work show that the schools, as they are, do not interest a large class of children as much as does industrial work.² Of those stated as preferring work—

in most cases it was a real liking for work, rather than for its attendant circumstances, which accounted for their leaving school. For the most part these children did not dislike school; in fact many of them distinctly liked it, only they liked work better.³

Of all the children, 51.1 per cent were satisfied with school and teacher, 48.9 per cent not so.⁴ Even 39.5 per cent of the pupils classified as bright by their teachers were dissatisfied.⁵ That the schools do not provide opportunity to bring out by any means the full capacities of the children is shown by the higher average estimates of their general capacity by their employers than by their teachers. Thus in a classification of all as bright, average, or dull, the teachers classify but 26.1 per cent as bright, the employers 49.4 per cent; while the teachers class 26.1 per cent as dull, the employers but 7.8 per cent.⁶

Would manual or preparatory industrial training in the common schools (the only ones treated in the report) tend to increase the interest of the pupils in their work and hold them longer in school? Answers to this question had to be secured generally from parents and were thus their opinion as to their children's views. They thought in 24.5 per cent of the cases that such training would have increased the desire of their children to stay in school. Columbus, Ga., one of the seven cities investigated, has excellent manual training work and two special industrial schools. There was in Columbus less dissatisfaction by the children in the schools than elsewhere, which would seem to be due to these industrial features did not Columbia, S. C., with no manual or industrial training, have almost as good a record.⁷

Most of the children studied entered unskilled industries, while but few entered trades. But little real choice was exercised by most (88.7 per cent), as follows: ⁸

Worked for parents or relatives or at home.....	29
Took first place offered.....	313
Went where friends or relatives worked.....	192
Took something near home.....	16
Total (88.7 per cent).....	550

¹ Vol. VII, 1910 (61st Cong., 2d sess., S. Doc. No. 645), of Report on Conditions of Woman and Child Wage Earners in the United States, in 19 volumes, pp. 50-52.

² *Ibid.*, pp. 52-55.

³ *Ibid.*, p. 55.

⁴ *Ibid.*, p. 110.

⁵ *Ibid.*, p. 120.

⁶ *Ibid.*, pp. 122, 123.

⁷ *Ibid.*, pp. 108, 110-112.

⁸ *Ibid.*, p. 183.

For the remainder, the reasons were as follows:

Wanted to learn trade or skilled occupation.....	27
Attracted by high wages.....	11
Attracted by desirable work.....	31
Set up in grocery business by father.....	1
Total (11.3 per cent).....	70

"Practically 90 per cent of the boys and all of the girls entered industries whose average weekly wage for all employees is under \$10."¹ Though most who entered trades did so by aid of friends or relatives in the trade, there are indications that such aid was chiefly of value in opening the children's eyes to the trade opportunity. Without such special information, nothing awakens the child to the desirability of an occupation promising a future; so he drifts into the first position handy.² This suggests a service which manual training or elementary prevocational training in common schools, as well as intermediate industrial schools, can render—the awakening of the child to an industrial intelligence which shall, among other results, aid him to select intelligently and enter a vocation which promises a future, if that be possible with his family's means.

Purposeful planning or definite ambition existed in the minds of "barely half of the boys and less than half of the girls."³ Often where such ambition existed the work being done at the time bore no manner of relation to this ambition and furthered it not one whit.⁴ A much larger percentage of those who had completed half or more of the school course had definite ambitions for their work than of those who had not gone so far. Since the correlation between age and grade is low, this seems to show "that the schools have had considerable effect in giving the pupils a definite aim in life."⁵ Finally, 167 boys (47.3 per cent) and 108 girls (40.2 per cent) said that if an evening trade school were opened they would wish to go.⁶ Can not these cities, and others, afford to give the children the opportunity they need and wish?

¹ Vol. VII, 1910 (61st Cong., 2d sess., S. Doc. No. 645), of Report on Conditions of Woman and Child Wage Earners in the United States, in 19 volumes, pp. 151, 152.

² Ibid., pp. 186, 187.

³ Ibid., p. 190.

⁴ Ibid., p. 189.

⁵ Ibid., pp. 190, 191.

⁶ Ibid., p. 192.

PART II. GERMANY.

CHAPTER V.

THE BACKGROUND OF THE INDUSTRIAL SCHOOLS.

To understand aright the very successful experiments of Germany in the field of industrial education, some consideration of the nation's industrial background is necessary.¹ Germany has developed very slowly, both in political integration and in industrial improvement. In fact, surprising as it may seem, the greater part of Germany's industrial advances have been made since her final integration into a nation in 1871. While England was leading the world in industrial and commercial advances Germany was lying dormant, unfavored in position, with a naturally poor soil, surrounded by enemies, and with a very conservative population, chiefly agricultural. Long after England had passed through the first and most violent stages of the industrial revolution, and the other countries of western Europe were in the midst of the great changes, Germany awoke from her lethargy and slowly began, under the stern force of necessity, to develop her industries and to give less relative attention to agriculture and more to manufacturing, transportation, and commerce. In one respect the country's slowness of development was an advantage, for the terrible waste of human life and health which accompanied the industrial revolution in England was almost unknown in Germany. Very slowly did Germany, borrowing the tools and ideas of her rivals, or learning them by stealth, develop modern factory industries. Yet the lack of national unity was a great drawback. Not until the tariff union (Zollverein) was formed in 1835 were the first barriers broken down, while the German nation was not able to stand forth as a unity till the fateful days of 1871. Since then German industries, fostered by a strong and paternalistic Government, aided by the best that science can bring and by a fine system of industrial education, conducted by a people hardy, diligent, faithful, subservient to discipline, and inspired by public spirit, have grown in size and strength until Germany is to-day one of the leading manufacturing and export nations of the world.

¹ See Howard: *Cause and Extent of the Recent Industrial Progress in Germany*; and *Spec. Consular Reps.*, vol. 33, *Indus. Educ. and Indus. Conditions in Germany, 1905*.

In giving credit to the various factors which are jointly responsible for Germany's industrial successes, the qualities of her eminently industrial people and the stern necessities of her situation should have first place. Germany had few of the natural advantages in which the United States is so rich; her population was among the densest in Europe, and constantly increasing, with no outlet in colonies, and whatever markets she won must be won from rivals first in the field, and, at the start, better equipped than she. It became increasingly apparent as the nineteenth century grew older that Germany's farms could not long support her population. She must import foodstuffs, and to this end must become a manufacturing nation. The present Kaiser sounded the watchword for the country when he declared: "The future of the German nation lies on the seas." The German people realized this, and have steadfastly kept their faces turned toward their foreign markets, and to the many factories where all manner of goods are made, to be consumed from Bremen to Peking.

Other factors in Germany's industrial and commercial success are those which flow from the persistence and thoroughness, typical of the race. The Germans have realized that theirs was not a situation to be dealt with by careless methods, and that the closest mental application was necessary to solve the hard problems before the country. Fichte was largely instrumental in starting the nation, after the defeats by France at the beginning of the nineteenth century, in the paths of careful and scientific investigation and education. The nation followed his methods and has progressed by taking thought. Joined to this general thoroughness is a degree of cooperation for the common interests, through the centralized Government and otherwise, from which much better results can be expected and have actually been obtained than is possible with less centralization. This is evident, for example, in the influence of Government and of guilds on the industrial schools. Finally, the German nation follows the lead of science in her industries and relates science to industry in a marked degree.

Along with Germany's very rapid progress in the past few decades there are aspects of her development not nearly as progressive. Her agriculture, on the whole, is backward, while the whole country suffers from overpopulation and the low plane of living accompanying it. The position of the average worker is a humble one, with little opportunity to rise. The idea of "Stand," that is, business, or more broadly, social position, is a fundamental one in the German thinking.¹ A man has a place in life of which birth is the chief determinant. He is expected to, and he usually does, both conform fairly closely to the type for that Stand and fail to change to another Stand. The medi-

¹ Howard, pp. 94 ff.

eval idea of labor and enterprise not for profits but for livelihood (according to the requirements of the individual's Stand), still persists and conspires with the difficulty, or nigh impossibility for the great majority, of obtaining a surplus revenue over present needs, to preserve the status quo. On the other hand, the various industrial insurance funds, a better administered poor relief, industrial education, an industrial law well executed, which protects the worker in many ways, combine to make the maintenance of a worker's Stand and plane of living surer than in our country. One of the antecedents of the German system of education, especially industrial education, which must be kept in mind, is that a man's Stand, once chosen and fairly started on, can not be as easily changed as in the United States, if at all. If one fails at his chosen business, he fails in life, as there is much less opportunity than with us to change his vocation. This idea both fosters and is fostered by the practice of educating for a special business, whether it be cobbler or diplomat, which is more universally observed than is usual in the United States.

Compulsory military service is a factor in German industries of no mean importance. Requiring of all men, with but few exceptions, two years of service (three if in the cavalry) after reaching the age of 20 years, it affects practically the entire male population.¹ However much of evil this service may involve, in tax burdens and in taking two of the best years of each man's life, German opinion holds strongly to the view that it benefits the country's industries. It is claimed that it strengthens the physique, accustoms to cleanliness, order, and discipline, and makes for self respect.² It has other results which are to the American mind not so desirable. It tends to overemphasize subordination and to subdue excessively the initiative and personality of the worker.

The industries³ of the country are classified under two main heads—factories (or large industries) and handwork (or little industries). A common national industrial law⁴ (Reichs Gewerbe-Ordnung, or Gewerbe-Ordnung) governs all industries, while under its terms and within the limits it sets lesser laws and regulations apply to any particular industry. Much of this national industrial law applies to all industry, while the conflict of years between the two types of industry has resulted in special provisions of the law for each. This industrial law gives no definition of factory nor of handwork, and an official of the Prussian ministry for commerce and industry⁵ told me that the

¹ University students are free from the requirement; those who pass successfully six years work in Gynasium, Realschule, or equivalent school, receive the coveted certificate commuting the service to one year (as a so-called "volunteer," with special privileges); there are other lesser exceptions.

² U. S. Spec. Consular Reps., vol. 33, Indus. Educ. and Indus. Conditions in Germany, pp. 271, 272.

³ Industries proper, not including agriculture.

⁴ Reichs Gewerbe-Ordnung (R. G. O.), as in edition edited and annotated by Dr. Hoffman, pub. by Carl Heymann's Verlag, Berlin, 1911.

⁵ Königliche Preussischen Ministerium für Handel und Gewerbe.

ministry is as yet unsuccessfully seeking to define certain industries as factory industries and certain as handwork. The difficulty arises from the fact that the two types shade into each other by insensible gradations; in fact a given industry is carried on by some after the factory type and by others after the manner of handwork.

The national industrial law states the following criteria according to which administrative and judicial authorities may decide whether a given business be factory or handwork: "(1) The size and extent of the space used; (2) the extent and value of the annual production; (3) the kind of division of labor and the more mechanical or the more craftsmanlike cooperation of the workers; (4) the more or less extensive use of machines; (5) production on the basis of special orders and retail sale, or for a stock of goods or large-scale production (or partial production); (6) the character of the industry as a by-industry of the machine or large industries, especially the preparation of specialties; (7) the personal sharing of the business head in the production of the commodity, or the limitation of his activity to the commercial superintendence; (8) the training of apprentices according to the manner of handwork, and the employment of youthful workers" (who are not apprentices, which is typical of factories).¹

This division into handwork and factory industries is profoundly important in all industrial questions in Germany. The country has been and remains slow in substituting modern factory types of industry for the older and more simply organized handwork. Not that factories as large as any do not exist in Germany, but the proportion of workers busied in them is probably less than in the United States; how much less is very hard to tell. Census figures for 1907 show the following proportions of all industrial workers in establishments of different sizes:²

	Per cent.
Persons working alone.....	10.1
Persons in establishments employing 2 to 5 persons.....	19.4
Employing 6 to 10 persons.....	6.6
Employing 11 to 50 persons.....	18.4
Employing 51 to 200 persons.....	20.1
Employing 201 to 1,000 persons.....	17.3
Employing over 1,000 persons.....	8.1

The lesser importance of factories in Germany has made some of the industrial problems easier to solve than they are in the United States. This is notably true of apprenticeship and industrial education, whose hardest problems on both sides of the water are connected with factories.

¹ R. G. O. (Imperial industrial law), p. 297.

² Bücher, Karl. The "Law of Mass Production," in *Zeitschrift für die gesamte Staatswissenschaft*, 1910, 3 Heft, p. 430.

In certain trades and among certain people in Germany handwork is sure of a permanent place. The building trades, for example, will probably always require the general type of industry and organization which now obtains in handwork. All trades, or cases of practice of trades, where individual orders are the rule or small local shops are needed or artistic design is the chief consideration, will continue to be carried on after the craftsmanlike manner of handwork. Another stronghold of handwork is the farming population in some districts, who, when farm duties do not press, supplement their scanty incomes by manufacturing a great variety of tasteful and useful articles. The German people as a whole realize the advantages of the handwork type of industry, and with traditional conservatism have opposed the rising prominence of factories and are striving to keep all industries possible in the fold of handwork. In this effort they not only show that "in Germany, as in no other country the people have been unwilling to break with their past," but they are also conserving that type of industry in which the personal and more human factors have a fair chance to control the situation to the welfare of all concerned, and limiting the application of that type in which the technical factors tend to ride rough-shod over the personal, often to the benefit only of the consumer.

The laws and institutions by which the Germans have attempted to solve the hard problems of apprenticeship and industrial education center chiefly about handwork, for the problem in the factories is to-day far from solved. In the same sphere of industry our greatest problems of industrial education lie. Germany can help us by her example in our efforts to solve these problems. But her greatest triumphs have been in the sphere of handwork, and we must modify the lessons she teaches to suit the greater importance of factory industries with us.

The degree of specialization attained in German industries is of the utmost importance in her attempted solutions of the problem of industrial education. How much specialization exists is, however, extremely difficult to discover and would require for a complete answer an extensive investigation. I can offer a limited amount of data on the subject.

By specialization, for the present purposes, we may understand the practice by each worker of only a more or less narrow subdivision of a trade. This definition suggests the question, What constitutes a trade—a wide or a narrow range of operations? No precise answer can be given, or rather, the type of answer varies from trade to trade. German trades, like those of the United States, show a gradual tendency to split up, while new and formerly unheard-of trades constantly develop. But in Germany, in some cases, the original trades

were (and are) more comprehensive than those in the United States, and so the splitting up of these more comprehensive groups of operations results in less of specialization than in the United States. For example, the complete trade of the German Klempner (plumber) includes plumbing, gas, water, and steam fitting, sheet-metal work, miscellaneous repairing, and generally also electrical fitting.

Another feature of German specialization, found probably less often in the United States, is the training of workers in handwork, where they learn their whole trade, and then later specialize in factories. Thus a plumber will learn the whole of his trade in an old-style shop, or a branch of it only in newer more specialized ones. This training will generally include electro-technics. He can then enter as a journeyman a factory manufacturing electrical goods and learn and practice a specialized branch of his trade, as armature winding. The handwork masters say that by this process the factories withdraw the best journeymen from handwork.¹ The Reichstag, in an inquiry into the conditions in handwork instituted in 1895, stated that in their opinion the number of handwork journeymen who had entered factories far exceeded the number remaining in handwork.² This type of specialization has a manifest advantage over that practiced in many or most factories in this country, in that it is subsequent to and rests on a general practice and acquaintance with the whole trade or a large branch of it.

The extent of specialization varies greatly from locality to locality, often even though these may be adjacent. In general, we may say that, as in the corresponding industries in the United States, specialization has gone far in factories, but not nearly so far in handwork. Many handwork shops, however, carry on but a part of the whole trade. For example, some cabinetmakers practice all branches of their trade, some make only interior house "trim," some only furniture, and some only certain sorts of furniture. But businesses which make, for example, only chairs, or only chairs of a certain type, are usually among those classed as factories. Informants stated that there was little specialization in their locality in Mannheim, Coblenz, and Cologne; that there was little specialization in handwork in Chemnitz, Elberfeld, Dortmund, Essen, and Aachen; and that there was much specialization in Berlin, Munich, Frankfort on the Main, Barmen, Duisburg, and Dusseldorf (in most of these cities both in factories and handwork). To be cautious, a large allowance should be made in dealing with this data, for the personal outlook of the informants, probably often biased by one-sided special knowledge. Of one thing we may be sure: The problem of industrial education, as in the

¹ Dusseldorf Handwerkskammer.

² *Stenogr. Ber. d. d. Verh. d. R. T. 1895-97, 3.30*, quoted in Coelsch, Dr. Hans. *Deutsche Lehrlingspolitik im Handwerk, 1910, p. 123.*

United States, is not identical for different sections of the country. To sum up: The fact and the problem of specialization are the same in the two countries, but the United States has the problem in an acute form, both because more of our industries are of the factory form and because specialization in small and less specialized shops (corresponding to German handwork) has gone further than in the older country.

The ordinary workman, specialized or not, the private in the ranks, has in all the initiative and management of the business in which he works, and often in its welfare institutions also,¹ but little say. The prevailing sentiment of the middle class seems to be that he should be kept from much or any influence or control in industrial matters. Yet the workers do not so regard the matter, and many of them are striving with great energy for more democracy in industry.

The German trades-unions are less strong and unified than those of England and the United States.² The right to combine is guaranteed under the law to all employers and employees, except servants, farm workers, and sailors. Strikes and lockouts are legitimate, but the means by which they are carried on are more closely regulated than with us, and the rights of the unions in general more restricted. Politics are prominent in the German unions and divides them into three separate camps. Of these, that of the "Free," or Social Democratic unions, is by far the largest, numbering about 700,000 members. It is closely associated with the Social Democratic Party, pays relatively little attention to mutual aid within the union, and much to political activity without. The "German" or Hirsch-Duncker unions number about 100,000 members and are framed on the English model, with mutual aid or benefit features prominent, and a less militant political attitude. The third group, of less than 100,000 members, is that of the "Christian" unions, formed under the influence of the Roman Catholic Church as a protest against the atheistic and radical social attitude of the Social Democratic unions.

Distinct from the unions are the guilds, some of them descended without break from the bodies which so dominated industry during medieval and early modern days.³ These hold such peculiar and important relations to industrial education and apprenticeship that they are worthy of fuller consideration, which I offer in the chapter following.

¹ Note an exception, ch. 6, p. 58.

² Spec. Consular Rep., vol. 33, pp. 254-268.

³ Bulletin No. 27, Bureau of Labor, pp. 314-328.

CHAPTER VI.

GUILDS AND CHAMBERS OF INDUSTRY.

The industrial revolution, which came in Germany more as an evolution, broke down the power of the old-time guilds (Innungen) and left industry with few helmsmen save the heads of individual firms. The permanent interests of industry, as well as the public interest, suffered in consequence. Especially was the lack of the former guild regulation seen in the defective training given to apprentices,¹ and a multitude of other abuses sprang up, among which those pertaining to apprenticeship were chief. Uncontrolled competition was weighed and found wanting by the Germans. Regulation there must be, and yet preferably regulation in which the undertakers of industry should have a share. To meet this need, the old-time guilds were revived, and in place of their old-time powers, new rights and powers were given to them. A few of the old-style guilds were reorganized on the new basis, but most existing guilds have arisen during the last few decades, under the new laws. These guilds are designed primarily to meet the needs of handwork, and have almost no bearing on factory industries. Very few factories have any connection with guilds.²

Guilds are either free or compulsory. Any independent tradesman may establish a free guild³ for a trade in a definite district.⁴ The requirements for membership are:*

(1) That the candidate carry on independently the industry for which the guild is organized, and in its district; or (2) that he be a foreman or in a similar position in a factory engaged in the same industry as that of the guild; or (3) that he shall have formerly held one of the above positions and now practices no other trade; or (4) that he be a handworker engaged in agriculture or industry for wage. The ability of the candidate to carry on the industry independently may be determined by examination. No qualified person may be denied membership, and no exceptions to these rules are allowed.

The purposes or duties of the guilds are stated by law to be the development of an esprit de corps and trade honor; the promotion of friendly relations between masters and journeymen, as well as care for journeymen's homes (Herberge), and information about

¹ Coelsch, Dr. Hans. *Deutsche Lehrlingspolitik im Handwerk*, p. 50.

² An engineer of Fried. A. G. Krupp.

³ R. G. O. (Imperial Industrial law), sec. 81, pp. 254.

⁴ *Ibid.*, sec. 83, pp. 256ff.

* *Ibid.*, sec. 87, pp. 266ff.

employment; the detailed regulation of apprenticeship, and the care for the technical, industrial, and moral training of the apprentices; and the decision of disputes between guild members and their apprentices.¹ Besides these prescribed duties, guilds have certain other permitted activities. They may establish and support schools for industrial, technical, and social education of masters, journeymen, and apprentices.² They may hold journeymen's and master's examinations and certify the candidates which pass them. They may establish funds to aid their members and their employees in case of sickness, death, inability to work, and other emergencies. They may establish guild courts, which shall take the place of the regular authorities as the court of the first jurisdiction, in the settlement of disputes between members and their employees. Finally, they may establish a common business to promote the interests of the guild members.

The statutes of the guilds must regulate within the limits allowed by law, and by the regulations of the Government authorities and chambers of industry,³ a number of matters, including the supervision of the regulations of the activities of journeymen, apprentices, and other workers, and those for attendance on improvement or trade schools, and for the regulation of apprenticeship.⁴ Deciding on the detailed statutes for the regulation of apprenticeship is one of the (10) most important kinds of business which can not be delegated to the directorate, but must be undertaken by the guild assembly.⁵ The guilds are authorized to supervise, through agents, the execution of the legal and guild regulations in the industry for which the guild is organized. Such agents of the guild as are selected must be allowed access to the workshops and employment rooms of guild members during working hours.⁶ These regulations do not apply to any workrooms which are parts of agricultural or factory industries,⁷ which indicate that the guilds are designed distinctly for handwork.

The guilds are under the close supervision and authority of the subordinate Government administrative authorities.⁸ All guild statutes, as well as any amendments to them, must be approved by the proper authorities.⁹ The guild institutions, as schools, insurance funds, etc., must be administered under special regulations, to be approved by the legal authorities.¹⁰ If a guild neglects to submit to

¹ R. G. O., sec. 81a, pp. 254, 255.

² Ibid., sec. 81b, pp. 256ff.

³ Ibid., sec. 81a, 3, p. 254.

⁴ Ibid., sec. 83, 10, p. 260.

⁵ Ibid., sec. 83, 5, pp. 250ff.

⁶ Exceptions: If a master fears harm from such inspection, he can provide at his own cost a substitute, who shall furnish the directorate such information as they desire.

⁷ R. G. O., sec. 94c, pp. 284ff.

⁸ Ibid., sec. 86, p. 289.

⁹ Ibid., sec. 84, pp. 262ff.

¹⁰ Ibid., sec. 85, pp. 264ff.

the proper demands of the legal authorities, these may appoint a representative who adjudicates guild disputes and takes initiative if necessary. No final decision can be reached by a guild on amendment of its statutes or by-laws, or its own dissolution, without the presence of a representative of the authorities.¹

Of great interest as indicating a trend toward democracy in industry, or a revival of the voice of journeymen in the old-time guilds, is the journeymen's committee. All journeymen employed by a guild member, and in possession of citizens' rights, may vote for members of the committee of journeymen.² This committee takes part in the guild affairs as largely as the law and the guild statutes allow. It is concerned especially with the regulation of apprenticeship, with the journeymen's examination and with the founding and administering of all institutions for which the journeymen contribute, in which they have special interest, or which are designed to aid them. The guild statutes, in their detailed regulations, must provide that (1) in the discussion and final decision of the guild directorate at least one member of the journeymen's committee shall be admitted with full voting rights; (2) in the discussion and final decisions of the guild assembly all the members of the committee shall be admitted with full voting rights;³ and (3) in the administration of institutions of which journeymen, according to the president of the guild, make use, journeymen elected from their committee are to participate in equal numbers with the guild members.⁴

Guilds are allowed legal status and liability limited to their property.⁵ They may collect dues from their members, fees for institutions established by them, and fines; and these are collectible by force of law as any other just debt.⁶ The law further regulates the form of organization and mode of doing business, the organization of guild courts, and other matters, but allows, however, within the prescribed forms, considerable freedom of activity to the guilds.⁷

Under these laws guilds have been established in great numbers throughout Germany. Their effect has been to bring about some degree of cooperation of competitors in industry in common regulation of what most concerns them. Their influence on apprenticeship is highly beneficial, tending to replace neglect by care, exploitation by education. Acting under their permitted powers, the guilds have founded numerous industrial schools. Many of these have been taken over since by cities or other public authorities; many are controlled and supported partly by the guilds which founded them and partly by Government, while some are to-day wholly guild schools. In almost all trade schools, whether founded by guilds or

¹ R. G. O., sec. 96, pp. 289ff.

² *Ibid.*, sec. 5a, p. 288.

³ Without which any decisions are void.

⁴ R. G. O., sec. 96, pp. 286ff.

⁵ *Ibid.*, sec. 86, p. 286.

⁶ *Ibid.*, sec. 88, pp. 270ff; sec. 89, pp. 271ff.

⁷ *Ibid.*, secs. 81-99, pp. 254-296.

not, and in many other industrial schools also, the guilds of the trades concerned are represented on the boards of trustees, furnish models, require their apprentices to attend, assist in conducting examinations and otherwise aid the schools.

A special type of guild may also be established under the national industrial law—the compulsory guilds (*Zwangsinnungen*). For the promotion of the common industrial interests of a handwork trade or of several such related trades, and on motion of the handworkers in the district, the authorities must require all those in the district engaged in the trade or trades concerned to join together to form a new compulsory guild. Several conditions, however, must first be fulfilled. The majority of those in the industry or trade and district who employ journeymen or apprentices must approve, the district must not be too large to permit the ready attendance of all members on guild gatherings, and the number of members must be enough to form an efficient guild. The initiative in the formation of a compulsory guild may come from a free guild (as all noncompulsory guilds may be called) of the industry concerned, or from individual handworkers.¹ An official ratifying vote of all the handworkers in the trade or trades and district concerned must be secured by the authorities. This vote is taken by mail, and a majority of those voting decide the question.²

On the formation of a compulsory guild, the (free) guilds which are organized for the same industry and district must dissolve. Guilds which include also other branches of industry continue in existence, but those of their members who are required to join the new compulsory guild must withdraw.³ The property of a guild dissolved as a result of the formation of a compulsory guild⁴ may go over with its liabilities (not to exceed the property) to the compulsory guild. Sick funds are normally to be transferred to the compulsory guild, and other benefit funds may be so transferred.⁵

The regulations for guilds in general apply also to compulsory guilds, with such modifications as the law specifically makes.⁶

All those who carry on independently in the district the trade or industry for which the compulsory guild is established are required to join. Exception is made of those who carry on the industry according to factory methods. The approval of the authorities is requisite for the accession of certain doubtful classes, as handworkers in agriculture or industry for pay who employ journeymen or apprentices and those engaged in house industries.⁷ In addition to those required to join, others are entitled to do so. Such are (1) those included in

¹ R. G. O., sec. 100, pp. 300ff.

² *Ibid.*, sec. 100a, p. 302.

³ *Ibid.*, sec. 100b, p. 303.

⁴ *Ibid.*, sec. 100k, pp. 303-309.

⁵ *Ibid.*, sec. 100l, pp. 309-10.

⁶ *Ibid.*, sec. 100c, p. 304.

⁷ *Ibid.*, sec. 100f, pp. 305ff.

classes 1 to 3, inclusive (p. 56), as well as all handworkers engaged in agriculture or industry for pay and who employ neither journeymen nor apprentices; and (2) those who carry on the industry of the guild according to factory methods, if the guild assembly votes for them.¹ In cases of question concerning right or duty of membership, the legal authorities decide the matter.²

The special care given to apprenticeship regulation is shown by the enforcing of stricter requirements for eligibility to committees responsible for the execution of the regulations on apprenticeship than for eligibility to other committees or to the guild directorate. Journeymen also who are on these apprenticeship committees must meet higher tests than for membership on other committees.³ The detailed regulations of apprenticeship by the assembly of a compulsory guild requires the approval of the superior administrative authorities, whose decision must be preceded by a hearing of the chamber of industry of the district.⁴ This closer degree of supervision than is required for the regulations of free guilds is maintained because the regulations of compulsory guilds must be followed by all its members, whether required to join or not; and even handworkers who employ neither journeymen nor apprentices may, under certain conditions, be required to join. Thus all handworkers in the industry and district may be brought under the guild, and through them employees of all grades may be indirectly affected. To require all handworkers who employ neither journeymen nor apprentices to join the guild, the assembly must first vote for the proposal, a majority of those to be included must approve and the requirements as to the extent of the guild district must be met.⁵

Because of their compulsory nature, these guilds are not allowed to require a member to share in any benefit fund other than the guild sick fund. No cooperative business may be established by a compulsory guild, such as funds for loaning, cooperative purchase or sale bureaus, etc.⁶ Further, no compulsory guild may act in restraint of trade by limiting the prices its members may charge or the customers they accept.⁷ Guild contribution from members may by permission of the central authorities of the State be collected by addition to an industry tax, if such exist.⁸

A compulsory guild may be dissolved by order of the authorities, but only when three-fourths of the members vote in favor of the measure. A further check is put on dissolution by declaring the division of the guild property between the members to be illegal. Such property shall go to the guild welfare funds or to a new free

¹ R. G. O., sec. 100g, pp. 307ff.

² *Ibid.*, sec. 100h, p. 308.

³ *Ibid.*, sec. 100r, p. 313.

⁴ *Ibid.*, sec. 100p, p. 313.

⁵ *Ibid.*, sec. 100u, pp. 317-318.

⁶ *Ibid.*, sec. 100n, pp. 311ff.

⁷ *Ibid.*, 100q, p. 313.

⁸ *Ibid.*, sec. 100s, pp. 314ff.

guild for the same industry, or to the chamber of industry of the district, to be used for one of the objects stated just above.¹

Machinery by which neighboring guilds can cooperate is provided in the guild councils (Innungsausschüsse), which may be established for all or for several guilds standing under the same supervisory authority. Such councils concern themselves with the common interests of the participating guilds, which may delegate to them further rights and duties. The central government of each State may give to a guild council certain definite legal status, including limited liability (limited to its property). Guild councils are subject to the legal authorities much as are guilds.²

Guild associations (Innungsverbände), unlike guild councils, are formed only by guilds not under the same supervisory authorities. Their purpose is to advance their industry by assisting guilds, guild councils, chambers of industry, and authorities to carry out their legal duties. They are further authorized to regulate the furnishing of information about employment, and to found and support trade schools.³ An association may allow individual handworkers to join and represent their guild in the association.⁴

The associations are under the supervision of the superior administrative authorities in whose district their headquarters are.⁵ The association statutes must be approved by the authorities.⁶ They must furnish annually a list of the guilds which are members in the association.⁷ The association directors are authorized to present a report and proposals to the proper authorities and are obliged, on demand of these authorities, to give due attention to industrial questions.⁸ All assemblies of an association are to be held in its district, and may be forbidden or stopped if, by advance notice of the orders of the day or otherwise, there is evidence of purpose to exceed the legal sphere or powers of the association.⁹ An association may establish benefit funds for the members of the constituent guilds and their employees.¹⁰ The national senate (Bundesrat) may grant special legal status to any guild association, with limited liability (limited to its property).¹¹

Halfway between the official Government authorities and the primarily private guilds stand the semiofficial chambers of industry (Handwerkskammern), literally, chambers of handwork. Some of these bear the name of Gewerbekammer, but all are organized under the same law. These chambers are established by authorization of the State central authorities¹² to represent the interests of hand-

¹ R. G. O., sec. 100t, pp. 315ff.

² Ibid., secs. 101-102, pp. 318-320.

³ Ibid., sec. 104, pp. 336ff.

⁴ Ibid., sec. 104a, pp. 338ff.

⁵ Ibid., sec. 104k, pp. 343ff.

⁶ Ibid., sec. 104b, pp. 338ff.

⁷ Ibid., sec. 104c, pp. 339ff.

⁸ Ibid., sec. 104c, pp. 340ff.

⁹ Ibid., sec. 104d, p. 340.

¹⁰ Ibid., sec. 104l, pp. 342ff.

¹¹ Ibid., sec. 104g, pp. 341ff.

¹² Or of several States, if the chamber overlap State boundary.

work. Branch chambers may be established, or divisions for groups of industries.¹ The district for one of these chambers is much larger than that typical of guilds. In 1910 there were about 71 chambers of industry in Germany.²

The chamber of industry is an elective body, elected (1) by the handworker guilds³ having headquarters in the district of the chamber, and from among their members, and (2) by the industrial societies (Gewerbevereinen) and other societies which pursue the industrial interests of handwork, of whose membership at least one-half are handworkers who belong to no guild and reside in the district of the chamber.⁴

The requirements for eligibility to the chamber are rigid. Each member must be eligible to be a juror; must be 30 years old; must have carried on a handwork trade at least three years in the district of the chamber and be authorized to train apprentices.⁵ By high qualifications and long term of office, efficient service is secured from the members. The term of membership in the chamber and on its committees is six years, half of the members retiring every three years.⁶ The chamber may elect, according to its statutes, additional qualified members up to a fifth of its original number, and may invite qualified men with advisory power to its sessions. It may delegate regular or special duties to its committees.⁷

The special concerns of the chamber of industry are: (1) The detailed regulation of apprenticeship; (2) the supervision of the regulations concerning apprenticeship; (3) the aiding of the State and local authorities in the promotion of handwork by reports on questions important to handwork; (4) to debate motions and present conclusions and annual reports concerning handwork to the authorities; (5) to establish examining committees to manage the journeymen's examination; and (6) to form committees of appeal from the examining committees.⁸

The chamber has the right to be heard in all weighty matters concerning the common interests of handwork or any of its branches. It is further authorized to concern itself with institutions for the promotion of industrial, technical, and moral advancement of masters, journeymen, and apprentices, as well as to establish and support trade schools.

¹ R. G. O., sec. 103, pp. 321ff.

² Coelsch, pp. 42, 128.

³ Handworker guilds are all guilds the majority of whose members are handworkers. R. G. O., sec. 118, pp. 806ff.

⁴ R. G. O., secs., 103a, and 118, p. 806ff.

⁵ Ibid., sec. 103b, pp. 323ff.

⁶ Ibid., 103c, p. 324.

⁷ Ibid., 103d, p. 324.

⁸ Ibid., 103e, pp. 325ff.

The guilds and guild councils are obliged to follow the orders issued by the chambers of industry which cover their district and which are within its powers. All statutes and regulations of the guilds and guild councils which conflict with the regulations of the chamber of industry in authority are invalid.¹ The costs of the establishment and activities of the chamber of industry are, in Prussia, to be paid by the handworkers of the district and collected like a tax.² In Prussia, also, the permanent officials of the chambers have the rights and duties of State officers and take oath as they do.³

Factory industries are normally regulated by the semiofficial chambers of commerce, which hold for commerce, including factory industries, a position similar to that of the chambers of industry in handwork. However, these chambers of commerce are much less interested and much less zealous in the regulation of factory industries than their fellows in handwork. They commonly neglect this regulation, largely or wholly. Especially is this evident relative to the highly important conditions of apprentices and youthful workers in factories and to industrial education. In consequence of this neglect, some chambers of industry have stepped into the breach and themselves regulate apprenticeship in factories.⁴

¹ R. G. O., sec. 103ff. p. 327.

² Ibid., sec. 122, pp. 609ff.

³ Ibid., sec. 120, p. 608.

⁴ Thus the Dusseldorf Handwerkskammer, the second largest in Germany, with several branches, regulates apprentices in factories. Data obtained from interviews with directors of Handwerkskammern in Dusseldorf and Aachen.

CHAPTER VII.

APPRENTICESHIP.

We have seen how in the United States apprenticeship has declined, and how throughout its recent history the prevailing attitude toward it has been that of *laissez faire*. The natural result of such an attitude and course of action has been inadequate preparation and overspecialization of the boy seeking to learn a trade, and his frequent exploitation as a mere youthful worker. In a strong contrast with American practice concerning apprenticeship is that of Germany. Conserving all that was possible of the virtues of the old-time apprenticeship, she has added new virtues to the system, minimized the former evils, and with the most deliberate care sought to improve the conditions of entrance upon and preparation for the trades. Efficiency, as always in modern times, has been her watchword, and regulation her means. So we find a well-developed legal system of regulation, which to strongly individualistic minds involves over-regulation. Whether it be so, or whether the system of *laissez faire* in vogue in our own country be better, we shall seek to determine from the data here presented.

What do the Germans understand by the term *Lehrling* (apprentice)? The most exact answers are to be found in the National Industrial Law and in certain court decisions. They agree in regarding the apprentice as a young person who is engaged in an industry chiefly for the purpose of learning the industry or a part of it.¹ The chief criterion of the industrial law as to whether a given individual is an apprentice or not is whether he is learning the trade or not.² An apprentice is thus to be clearly distinguished from a youthful worker who is not an apprentice, for the latter even though working in the same shop or even side by side with the apprentice is not necessarily taught the trade and is protected by none of the regulations which safeguard the apprentice. Apprenticeship is the usual mode of entrance to a handwork trade; but factory industries are entered by boys either as apprentices or as youthful workers (called, to distinguish them from apprentices, unskilled workers—*ungelernte Arbeiter*).

The purpose of apprenticeship is primarily the efficient training of the apprentice, and this is regarded as of the utmost importance to his individual well-being in his trade and out, and of the greatest civic importance, for the efficiency and general development of whole

¹ Coelsch, pp. 30-32.

² Bützera, in Coelsch, p. 33.

social classes of the citizens depend largely or chiefly on the proper training of apprentices.

I can not leave the matter even thus, for investigation in Germany leads me to conclude that the core of the industrial education situation there is not the industrial schools, but the system of apprenticeship.¹ For by far the larger part of the training of the great majority of apprentices still takes place, not in the school, but in the workshop. The extraordinary growth of industrial schools in Germany during the last few decades should not blind us to this fact. Indeed the system of industrial schools, so far as that is made up by the compulsory improvement schools, is in a sense but a part of the apprenticeship system, though the compulsory attendance on these schools applies also to unskilled youthful workers as well as to apprentices. Hour for hour, the industrial schools probably leave a deeper impress on the apprentices and other students attending them than do the shops; but we must not forget that the shops have the apprentices an average of perhaps 56 hours a week and the schools but 4 to 8.

Some of the provisions of the National Industrial Law on apprenticeship are applicable to factories and handwork industries alike; while others apply only to handwork, which is thus more closely regulated.² The ordinary provisions concerning apprentice contract, etc., do not apply to apprentices in teaching workshops (*Lehrwerkstätten*) recognized by the State nor to the apprenticeship of a son to his father.³ The first of these exceptions is probably desirable where the workshop in question is the actual substitute for that of the master, but not, as in Baden and Wurttemberg, for regular shops merely supervised by the State.⁴ In case a son be apprenticed to his father the above exception applies only if the chamber of industry be informed in writing of the existence of the apprenticeship, the trade, day of its beginning, and its duration. This provision applies to all apprentices, handworkers, and others, who are under the supervision of a chamber of industry. This is for the purpose of protecting the apprentice in certain exigencies, but is not intended to replace the paternal relation by a legal one.⁵

The right to have apprentices is very carefully limited. No one not a citizen is allowed the right.⁶ Grave and repeated offenses against

¹ Prof. Charles McCarthy did not realize the vitality of apprenticeship in Germany to-day when he made the following statement: "The Germans have studied out a plan for replacing the *apprenticeship system*, now worn out because of the growth of the modern factory system and the minute division of labor entailed by this system. * * * The Germans taking the remnants of the *apprenticeship system*, which of course still exists here and there, have added to it the continuation school." (Italics mine.) Report of Wisconsin Commission on Industrial and Agricultural Training, 1911, p. 20.

² Statements below concerning the law of apprenticeship apply to all apprentices unless otherwise stated.

³ R. G. O., sec. 126b, p. 407ff.

⁴ Coelsch, p. 69.

⁵ R. G. O., sec. 126b, pp. 407ff. and Coelsch, pp. 69, 70.

⁶ R. G. O., sec. 126, p. 408.

apprentices or unfitness (bodily or mental) to train them permit the temporary or permanent withdrawal of the right.¹ These regulations cover all industry. In handwork, in addition, all who train (i. e., supervise and instruct) apprentices must be at least 24 years old and must have passed their master's examination (and thus have the title of master). If such a person does not have the title of master in the industry or branch in which he wishes to train apprentices, he may be permitted to do so if he has fulfilled the required time of apprenticeship and passed the journeyman's examination in that branch of industry or if he has for five years carried on independently the handwork concerned or been for an equal period engaged in the work as foreman or in a similar position.² The higher administrative authorities may confer the right to train apprentices on others than those who fulfill the above conditions after the chamber of industry and any guild for the industry and district have been heard. Exception is further made from the requirement of the master's title for a period not to exceed one year in the case of the death of the employer, in order that the apprentices may continue in the establishment.³ Journeymen are permitted to instruct apprentices in single technical manipulations. Apprenticeship in a handwork trade may be carried to completion in a factory if supplementary training be secured in a teaching workshop supported or recognized by the State or by other institution for industrial education. Before recognition of other institutions for the purpose the chamber of industry of the district must be given ample opportunity to present its views.⁴

One who meets the full requirements qualifying him to train apprentices in one branch of industry may train them also in other branches of the same industry. One qualified in one industry may train apprentices also in related industries. The local chamber of industry decides as to what industries are to be considered as related.⁵ The criteria on which these decisions are based are primarily either similarity of technique (as textile industries), or of the raw materials (as metal industries), dependence of one industry upon another for its raw materials, cooperation of several industries to produce the same product (as the building trades), or relations of the products in use (as food products).⁶ The differing histories of industry in different localities have resulted in different decisions as to what are related industries.⁷

Throughout Germany children must attend the common school (Volksschule), unless permitted to attend some other school, until

¹ R. G. O., sec. 126a, pp. 406, 407.

² R. G. O., sec. 129, pp. 418ff. This provision has ceased the transition to the present law, especially for old handworkers without the title of master. Cf. Coelsch, p. 43.

³ R. G. O., sec. 129, pp. 418ff.

⁴ R. G. O., sec. 129, pp. 418ff.

⁵ R. G. O., sec. 129a, p. 422.

⁶ Coelsch, pp. 41, 42.

they are 14 years old.¹ The great majority leave school then, and the boys (with whom we shall be mainly concerned) go to work under an employer. They must do this in most cases to supplement the meager family income. They may go into agriculture, commerce, or industry. Those who choose industry have before them the alternatives of skilled or unskilled work. Those whose families are not well enough off to forego the somewhat larger immediate wage, or who have less foresight, enter the ranks of the unskilled either as youthful workers (*ungelernte arbeiter*) or as errand boys and the like (*Laufburschen*). They will receive as wage, on the average, 8 to 10 marks (\$1.92 to \$2.40) a week the first year, rising in about four years to their maximum of 15 to 18, or even 20, marks (\$3.60 to \$4.32, or \$4.80).²

The employers do not want the boys as apprentices so young as 14 years of age, and do not regard them as very useful for the first year or so. But the boys' need is pressing; they must have work, and the employers are constrained to take them. As a result, they are set at odd jobs for the first period of their apprenticeship. An apprentice will be paid 2.5 marks (60 cents) a week for the first year, on the average, 3 to 4 marks (72 to 96 cents) the second, 4 to 5 (96 cents to \$1.20) the third, and 5 to 6 (\$1.20 to \$1.44) the fourth year, if the apprenticeship lasts so long.³ Handwork apprentices sometimes receive board and room and a trifle of pocket money in lieu of wage.⁴ Those parents who can do a little better by their boys keep them longer in school (*Gymnasium* or *Realschule*, rather than a trade school usually), if possible, until they have won the coveted one-year military service certificate, which would normally keep them in school until they are 16 years at least.⁵ Such boys, not many in number, begin their apprenticeship at about 16 years, and ordinarily learn faster, probably because of greater maturity and habits of application, than most of those who entered the same industries at 14 years of age.

The factories, like most in the United States, do not desire many, if any, apprentices; though they call for many unskilled workers, both youthful and mature. Such workers, other than apprentices, need not be given any instruction in the factory.⁶ Apprenticeship in factories differs from that in handwork in that the legal regulations are less rigid, the supervision of these regulations (nominally by the chambers of commerce, but often actually by the chambers of industry *) is less complete, the tendency to specialization is more marked, and in consequence the chances of the apprentice for a well-rounded

¹ With few exceptions.

² Herr Schulinspektor August Kasten, Hamburg.

³ Dr. Rudolph Görnandt, a director of Hamburg Gewerbekammer.

⁴ Cf. ch. 5, p. 51, note 1.

⁵ Herr Direktor Jung, Gewerbliche Fortbildungsschule, Barmen.

⁶ Cf. ch. 6, p. 62.

grasp of his trade are ordinarily poorer than in handwork, and his resulting need of supplementary training in industrial school is greater. Most apprentices, however, learn a handwork trade.

As the boy seeks to choose his trade, guided by the relative opportunities and his own leanings, he finds the guilds, chambers of industry, and other industrial bodies ready to help him in the choice. The way in which the advice is given and the boy aided to secure a place varies from place to place. Special bureaus in some localities advise him, booklets about the trades furnish him data on which to decide, and employment bureaus, public and private, help him to secure a position.¹ The machinery of vocational guidance, so new in our own country,² has been for a long time in operation among guilds and other industrial associations of Germany. Even there, however, the machinery is not fully developed, is not everywhere active, and many boys drift or fall into their occupations, instead of making a rational choice, based on knowledge of the significant facts.

It has long been customary for apprenticeships to be begun by a period of probation, and the national industrial law has since 1897 required such a period. By it either party is given the right to withdraw within four weeks unless a longer period, not to exceed three months, has been agreed upon.³ This right of withdrawal can not be waived.⁴ Originally the probationary period was desired to prevent thoughtless entering on apprenticeships,⁵ but now it is intended to show both parties whether they can probably bring the apprenticeship to a successful conclusion, and whether the work be suited to the ability and strength of the boy.⁶

The repeal of the older medieval apprentice regulations resulted in the neglect of the apprentice, morally and physically, shown by insubordination, breach of contract, and inefficiency.⁷ For several decades compulsory written contracts were popularly demanded, chiefly on the grounds that such contracts would limit the utilization of minors by their parents, protect apprentices from exploitation as youthful workers, and employers from breach of contract, and generally increase the feeling of responsibility and improve the regulation of apprenticeship. Since 1893, such contracts have been required by the National Industrial Law.⁸ The apprentice contract must be executed in writing within four weeks of the beginning of the

¹ Cf. list of booklets on vocational guidance, in References, p. 181.

² Pioneered by the Vocational Bureau, Boston, recently founded, whose activities are wide and expanding, and example illuminating.

³ R. G. O., sec. 127b, pp. 412, 413.

⁴ Coelsch, p. 91.

⁵ *Erhebungen des Reichskanzleramts über die Verhältnisse der Lehrlinge usw. 1876*, quoted in Coelsch, p. 89.

⁶ Coelsch, p. 88, 89.

⁷ *Ibid.*, p. 50.

⁸ *Ibid.*, p. 58.

apprenticeship and must contain certain provisions.¹ If no written contract be executed, or if the execution be delayed (classed as a "continuous offense"—*Dauerdelikt*), or if some of the provisions be omitted, the contract is still valid,² but the employer is punishable for each offense by fine of not over 20 marks (\$4.80) or imprisonment of not over three days.³ But not even in law-abiding Germany, and with such a law, do we find all apprenticeships have a written contract. In handwork they are nigh universal and in the larger factories usual, but in the smaller factories they are generally or often absent.⁴ The carelessness and ignorance of the children and their parents (chiefly the latter) in some districts are largely responsible for the lack of more contracts. Such parents wish to receive as much money as possible from their children's work, and so wish to have them free to change to whichever factory offers the largest reward for the time being. This breaks up the continuity of their instruction and is bad for them.⁴

The required provisions in the apprentice contract are statements of—(1) the industry or branch; (2) the length of the apprenticeship; (3) the mutual services required; and (4) the legal and other conditions under which one party may withdraw from the contract.⁵ Under the mutual service (3) are to be specified the money paid to the master, if any (for board and lodging, unless otherwise stated), wages, board and lodging, furnishing of tools, washing, etc.⁶ The contract must be signed by the employer or his responsible representative, by the apprentice, and by the latter's legal representative.⁷ Absence of one of these signatures makes any claim based on the contract invalid.⁸ The legal representative of the apprentice is liable for the fulfillment of the contract only if so specified, and then only to the extent of his authority over the boy.⁸ One copy of the contract is to be furnished him. The employer, to make possible public supervision of the apprentice contracts, must turn over the contracts to the local police authorities on demand.⁹ If the employer be a handworker and guild member, he must furnish a copy of the contract to his guild in lieu of the police, within 14 days after execution. The guild may require that the contract be executed before it. In this case the guild must furnish a copy of the contract to the master and another to the father or guardian of the apprentice.¹⁰

With handworkers, then, the guild supervises the apprentice contract in place of the police. The chambers of industry, however,

¹ R. G. O., sec. 126b, pp. 407ff.

² Schlicker, Reger, Landmann-Rohmer; in Coelsch, p. 54.

³ R. G. O., sec. 150, p. 508ff.

⁴ Herr Direktor Jung, Barmen.

⁵ R. G. O., sec. 126, pp. 407ff.

⁶ Schlicker, in Coelsch, pp. 62, 63.

⁷ R. G. O., sec. 126b, pp. 407ff.

⁸ Landmann-Rohmer and Nelken, in Coelsch, p. 65.

⁹ R. G. O., sec. 126b, pp. 407ff.

¹⁰ *Ibid.*, 129b, p. 423.

may¹ regulate the guilds in this supervision, and all of them have done so.² Those masters under a chamber of industry must make all their apprentice contracts according to specified normal forms and are subject further to the orders for the regulation of apprenticeship (*Vorschriften zur Regelung des Lehrlingswesens*) of the chamber.³ The apprentice contracts of the Prussian chambers of industry are all of about the same form, based on the recommendation of the minister of commerce. Those of other States vary more or less from these. The Prussian contracts require compulsory sick insurance of the apprentice, provision of enough time for the apprentice to make his journeyman's piece, and specifications as to who is to furnish the materials for and who is finally to own the piece.⁴ The Prussian and most other chambers of industry forbid the employers to take apprentices whose lack of school knowledge or bodily or mental defects unfit them for the apprenticeship in question.⁵ The Prussian and Baden chambers require the discharge of apprentices in case of their obstinate failure to attend the required school.⁶

The apprentice may take up his residence with his employer, if they so agree, though this is not done so much as in former days. In case of such residence, only such housework may be required of the apprentice as does not interfere with his training. If he receive neither board nor lodging from his employer, he may not be required to do any household work.⁷ This provision was new in 1897 and shows a development of public opinion since the law of 1878, which approved of such work.⁸ The financial relations of the employer and apprentice vary. Sometimes the apprentice pays the employer a sum (*Lehrgeld*), usually for board and lodging. Probably in the majority of cases the employer pays the apprentice, but only a small sum (cf. p. 67 above). Coelsch states that where the apprentice is paid a wage it is usually to stimulate his activity.⁹ The tendency is for board and lodging to be furnished less often than in former days and a wage to be more often paid.

On entering the apprenticeship relation, employer and apprentice thereby assume certain legal duties and liabilities. The employer is, according to the law of 1869,¹⁰ to make it his business, by teaching and practice, to train the apprentice to become a skilled journeyman. The employer must instruct the apprentice in all the work occurring in his business (which may be wide or narrow, according to how specialized his business is).¹¹ This does not require training in more than the trade or branch of industry specified in the apprentice contract, but it is a legal safeguard against overspecialization. Further,

¹ According to R. G. O., sec. 103c (cf. p. 63, ch. 6).

² Coelsch, pp. 66, 67.

³ *Ibid.*, p. 83.

⁴ *Ibid.*, p. 84.

⁵ R. G. O., sec. 127, pp. 410ff.

⁶ Coelsch, p. 77.

⁷ *Ibid.*, p. 97.

⁸ 1869, R. G. O., sec. 118. cf. Coelsch, p. 71.

⁹ R. G. O., sec. 127, pp. 410, 411.

it includes practical training only, and not theoretical.¹ The employer must allow time for his apprentices under 18 to attend a school recognized by the authorities as an improvement school (see further chap. 8, p. 81).² He must train the apprentice himself or through a qualified specially appointed representative.³ No exceptions to this rule are allowed. It is not sufficient to assign an apprentice to a journeyman without specific instructions to the latter to instruct him. The journeyman must also have certain qualifications.⁴ The employer must watch over the conduct and morals of his apprentice,⁵ both in and out of his working hours.⁶ In factories and large handwork shops, supervision away from work has been found impossible.⁷ Employers in such establishments have the recourse of discharge of an apprentice who commits certain offenses.⁸ The employer must protect his apprentice from abuse by other workers, and must give him only tasks suited to his strength.⁹ He must allow the apprentice sufficient time and opportunity to attend religious service on Sundays and holidays.¹⁰ The employer is liable for neglect of his legal duties to his apprentice to a fine of not over 150 marks or imprisonment for not over four weeks.¹⁰

The apprentice, for his part, is, according to the law, thrown under the fatherly authority of his employer and of those appointed to instruct him, and obliged to obedience and truth, industry, and probity.¹¹ This provision includes the right of bodily punishment by the employer or his responsible representative, but not by the teaching representative.¹² Irregular or improper punishment or that dangerous to health is forbidden.¹³ Those apprentices whose employers stand under chambers of industry must also follow their regulations, which include in all cases the obligation to obey all the proper orders of the employer or his legal representative and to obey all the shop regulations of the employer.¹⁴ The apprentice may be required to do other mechanical work than that in his trade; for judicial decisions have concluded that his whole working power is at the command of his master, though the fact that the chief purpose of the apprenticeship is training must be respected.¹⁵ The apprentice of an employer

¹ Coelsch, p. 73.

² R. G. O., sec. 120, pp. 380-384.

³ R. G. O., sec. 127, pp. 410, 411.

⁴ Coelsch, p. 74.

⁵ R. G. O., sec. 127, pp. 410-411.

⁶ Urteil. R. G., in Coelsch, p. 74.

⁷ Ibid., pp. 74-75.

⁸ R. G. O., sec. 127b, pp. 412ff.

⁹ R. G. O., sec. 127, pp. 410-411. Other duties of the employer are to be found elsewhere in this chapter.

¹⁰ R. G. O., secs. 148-9, pp. 490ff.

¹¹ R. G. O., sec. 127a, pp. 411-12.

¹² Coelsch, p. 85; and Nelken and Schickler, in Coelsch, p. 86.

¹³ R. G. O., sec. 127a, pp. 411-12.

¹⁴ Coelsch, p. 86.

¹⁵ Reger, in Coelsch, pp. 76, 78.

under a chamber of industry must care for tools intrusted to him.¹ His father or guardian is liable for the obedience, diligence, and punctual school attendance of the apprentice, but this liability amounts to little unless the father or guardian obligates himself in the apprentice contract to indemnify the master for any such mistake on the part of the apprentice.²

Certain circumstances permit the withdrawal from the apprenticeship of one of the parties after the probation period and before the apprenticeship is completed. The employer may discharge his apprentice if (1) the latter has deceived him materially on signing the contract; (2) if he has thieved, lived dissolutely, etc.; (3) if he has left his work when unauthorized to do so or constantly refused to do his duty; (4) if despite warning he is careless about fire; (5) if he commits grave offenses against his employer or others in his business or family; (6) if he intentionally harms the goods of his employer or fellow workers; (7) if he treats the families of his employer or fellows immorally; or (8) if he is unable to continue his work or has a loathsome disease.^{3,4} The apprentice may further be discharged if he repeatedly neglects his duties as specified by law,⁵ or if he neglects the attendance on trade or improvement school.⁶ The chambers of industry of Prussia and some others require those employers under their authority to discharge apprentices for bodily or mental defects or lack of skill or school training.⁶

The apprentice may withdraw if (1) his employer becomes unable to continue his work; (2) if the employer or members of his family abuse or act immorally toward the apprentice or his family; (3) if the employer does not pay the agreed wage, or furnish sufficient work, if piece wage be paid, or makes excessive gains from the apprentice; or (4) if the continuation of the work would be dangerous to the life or health of the apprentice, which fact was not known to him when the apprenticeship began. The apprentice may further withdraw if the master neglect in a dangerous way his duties to the apprentice relative to health, morals or training, or misuse his power of fatherly discipline, or becomes unable to carry out his contractual obligations.⁷ If the master die and the business be continued, the apprentice may withdraw if he does so within four weeks.⁸

Neither party to the contract may waive any of the above legal grounds for permitted withdrawal, but they may, says Coelsch, specify additional ones.⁹ The apprentice must be released by his

¹ Coelsch, p. 87.

² *Ibid.*, p. 87.

³ R. G. O., sec. 127b, pp. 412ff.

⁴ *Ibid.*, sec. 123, pp. 307ff.

⁵ *Ibid.*, sec. 127a, pp. 411-412.

⁶ Coelsch, p. 95.

⁷ R. G. O., sec. 127b, pp. 412ff.

⁸ *Ibid.*, sec. 124, pp. 400ff.

⁹ Coelsch, p. 95. Coelsch's view is disputed by several authorities, quoted on the same page.

employer within four weeks after his legal representative (or himself, if he be of age) has given written notice to his employer of intention to change his trade. The employer shall in such case note the reason for leaving in the apprentice's work book (*Arbeitsbuch*); and the apprentice shall be prevented from working at the abandoned trade under another master within nine months, except with the approval of his former employer,¹ or from working as a youthful worker (not apprentice) for the same period.²

The earlier industrial law (as that of 1869) allowed rather easy change of trade, and thus withdrawal by apprentices, and many withdrew in their second or third year. The Society for Social Politics (*Verein für Sozialpolitik*) declared in 1875, after investigation, that because of such breach of contract poorer preparation of apprentices resulted, for the employers must utilize their working powers early, lest they leave and the employers lose thereby. Payment of apprentices was one cause of such breach; for this parents were at fault, considering wage more than preparation; and employers, for seeking to secure discipline by payment of wage.³ Apprentices were best held by payment of a wage and holding a part until the apprenticeship was completed.⁴ In 1878 the law required compulsory return of runaway apprentices.⁵ The law now provides that if an apprentice leaves his employer without legal cause, the latter may only demand his return if the contract be in writing. The police authorities can, at their option, require the apprentice to return to his master if the latter complain within a week, except when a judge decides otherwise. Force, fine (up to 50 marks), or imprisonment up to five days may be used by the police to enforce return.⁶ A number of safeguards are thrown around this procedure, to protect the apprentice from abuse—the prompt complaint required from the employer, the option of the police, and the possible interference by a court.

In case the apprenticeship terminates prematurely, damages may be collected only if the contract be written. In certain cases, to be valid, the sort and amount of damages must be specified in the contract.⁷ If the apprentice leave the apprenticeship illegally, the damages shall, except as a lesser amount be agreed upon, amount to not over half the customary wage of journeymen in the industry of the employer for the time omitted, but not for over six months. The father of the apprentice is liable, so far as he has the care of the boy, for his breach of contract, as is also any employer who induced him to

¹ R. G. O., sec. 127c, p. 415.

² Landmann-Rohmer, Schlicker, Rohrscheldt, and Nelken, in Coelsch, p. 102.

³ *Schriften des Verein für Sozialpolitik*, in Coelsch, p. 103.

⁴ *Erhebungen*, 1875, a. a. O. S., in Coelsch, p. 104.

⁵ Coelsch, p. 105.

⁶ R. G. O., sec. 127d, pp. 413ff.

⁷ *Ibid.*, sec. 127f, pp. 415-416.

leave his apprenticeship or who gave him work, whether cognizant of the breach of contract or not.¹ Some chambers of industry specify damages for breach of contract in their required normal contracts, but most merely note that agreement on damages is necessary.²

There is no limitation to the length of apprenticeship in factories. In handwork apprenticeship must last usually three and not to exceed four years. Within the limit the length may be set by the chambers of industry with the approval of the higher administrative authorities for single industries or branches, and after the guilds and industrial societies concerned have had a hearing. The chambers of industry are further authorized to release apprentices in individual cases from the restrictions of the established period.³ They may make the period dependent on individual efficiency or on attendance at a trade or improvement school.⁴ Almost all chambers of industry make regulations concerning the period of apprenticeship.⁵ Between the different chambers the regulations differ considerably. Of 68 chambers answering an inquiry of Coelsch, 9 made no regulations, 37 set the minimum at three and the maximum at four years, while 15 required three years uniformly.⁶ The regulations seem to make the period too uniform, as between the several trades; and the chambers do not provide sufficiently for individual exceptions, the latter largely to avoid disputes with employers.⁷ Coelsch thinks that the period averages too long, on the whole, and regards three to four years for the difficult and two to four for the easier trades as desirable.⁸ Where the chambers of industry do not regulate the matter the guilds, free or compulsory, may do so with certain limitations.⁹

At the close of the period of apprenticeship the employer must furnish to the apprentice a certificate (*Lehrzeugnis*) stating the trade, length of the apprenticeship, the proficiency reached in knowledge and ability, and the conduct of the apprentice.¹⁰ This is to be given whether the apprentice has done well or not, if he complete the apprenticeship, and whether he wishes it or not.¹¹ The local authorities are to freely certify to the certificate (merely attesting the employer's signature¹²). Where guilds or other representatives of employers exist, their apprentice letters (*Lehrbriefe*) take the place of the employer's certificates.¹³

Toward and at the close of his apprenticeship the apprentice, if he be in handwork, must be given opportunity by his employer to take the journeyman's examination (*Gesellenprüfung*).¹⁴ This includes the making of a journeyman's piece. The law requires the handwork

¹ R. G. O., sec. 127g, pp. 416-417.

² Coelsch, p. 112.

³ R. G. O., sec. 130a, pp. 423-424.

⁴ Coelsch, p. 57.

⁵ *Ibid.*, p. 57.

⁶ Coelsch, pp. 57, 68.

⁷ *Ibid.*, pp. 59, 60.

⁸ *Ibid.*, pp. 60-62.

⁹ *Ibid.*, p. 62; R. G. O., sec. 81a, 3, p. 264.

¹⁰ R. G. O., sec. 127c, p. 413.

¹¹ Coelsch, p. 81.

¹² *Ibid.*, p. 80.

¹³ R. G. O., sec. 127c, p. 413.

¹⁴ R. G. O., sec. 131c, pp. 424-425.

apprentice to take this examination and his employer and master to hold him to it.¹ The chambers of industry in some regions, notably in Prussia and Bavaria, reiterate and try to enforce this requirement.² To have passed the examination involves advancement to the journeyman.³ But as a matter of fact many handwork apprentices never take the examination, and though the chambers of industry would like to force them to do so, the existing law is in this respect too weak for the purpose. Factory apprentices need not take the examination, and very few do so. The celebrated Krupp Steel Works in Essen seek to have their apprentices take the examination, which they conduct themselves, for the sake of indicating the degrees of individual progress made, but they do not require this, nor advance the journeyman any the less if he omit it.⁴ The State central authorities can require the journeyman's examination to be passed by all who receive certificates from teaching workshops, institutions for industrial education, or examination authorities whose certificate qualifies for Government service.⁵

An examination committee is to be established for every compulsory guild, but for free guilds only when a chamber of industry empowers them to hold examinations. So far as examinations in individual industries are not provided by guilds, institutions of instruction, or examining authorities, the chamber of industry shall arrange such examinations. The examining committee consists of a chairman, chosen by the chamber of industry, and at least two assistants, chosen as a rule for three years, and of whom one-half must be journeymen who have passed the examination.⁶ The examination must show that the apprentice is able to command in his industry the necessary dexterity and ability with sufficient certainty, and also that he is informed concerning the value, preservation, and handling of the raw materials to be worked with, and the recognition of their good and bad qualities. The procedure of the examination is determined by the superior administrative authorities with the agreement of the chamber of industry. Bookkeeping may be required, in addition to the above-stated subjects.⁷ For admission to the examination the apprentice must furnish his certificate of apprenticeship, and the certificate of attendance on an improvement or trade school, if such attendance was required of him. The examining committee note the passing of the examination on the apprenticeship certificate or apprenticeship letter.⁸ Its chairman may appeal from the committee's decision to the chamber of industry.⁹ The State central authorities may amend these regulations for the journeyman's examination, but may not lessen the requirements for passing it, as stated above.¹⁰ ⁷

¹ R. G. O., sec. 131c, pp. 427-429.

² Coelach, pp. 239-240.

³ Dr. Schoppacher *Handwerkammer Sekretär*, Düsseldorf.

⁴ An engineer of Fried. Krupp A. G.

⁵ R. G. O., sec. 131, pp. 424-425.

⁶ *Ibid.*, sec. 131a, p. 426.

⁷ *Ibid.*, sec. 131b, pp. 426-427.

⁸ *Ibid.*, sec. 131c, pp. 427-429.

⁹ *Ibid.*, sec. 132, p. 429.

¹⁰ *Ibid.*, sec. 132a, p. 429.

If an apprentice fail to pass the journeyman's examination, and the examining committee regard this as the fault of his employer, the apprentice may receive supplementary training from another employer, and the former employer be required to pay for his pecuniary loss.¹

By national law (not industrial law) all those who pass a specified examination in any branch of handwork may obtain the one-year volunteer military certificate. This examination is chiefly theoretical and is so hard that a young man passing it at, for example, 18 years of age, must be as able as any master workman.² Naturally, but few take this examination.

If too many apprentices are held by an employer, so that their training is endangered, the lower administrative authorities may compel the dismissal of some, and limit the taking on of more than a certain number.³ The dismissed apprentices, if their contracts be written, may demand an apprentice certificate and damages from their employer. The national senate (Bundesrat) may further regulate the maximum number of apprentices that may be held in establishments in a certain branch of industry. If such regulations are not made by the Bundesrath, they may be made by the several State central authorities. So far as these authorities have not legislated on the subject, the chambers of industry and guilds may, for those only who are under their charge (i. e., only handworkers, ordinarily), regulate the number of apprentices permitted.⁴ In 1904, seven years after these provisions became law, neither the Bundesrat nor any State central authorities had made use of this regulative power.⁵ Most of the chambers of industry have done so, however, some regulating all industries alike, and some making special regulations for special trades.⁶ Many of these regulations seem too general and unsuited to varying conditions in different industries and with different employers.⁷ How they have worked out in practice it is yet too soon to judge.⁸ Few employers' associations or trades unions have sought to regulate the maximum number of apprentices in their trades.⁹ In but few individual cases and in but few trades is there any excess of apprentices beyond what is desirable. The chamber of industry reports show a lack of journeymen and apprentices in the country and smaller cities, and the employment offices show a great lack of apprentices. So the attempts of the chambers of industry at regulation of the maximum number of apprentices seem to be on the whole not greatly needed.¹⁰

¹ Handwerkskammer, Mannheim.

² Gustav Koepper, Sekretär, Handwerkskammer, Coblenz.

³ R. G. O., sec. 128, pp. 417-418.

⁴ Ibid., sec. 130, p. 423.

⁵ Erhebungen a. a. O. S., in Coelsch, p. 119.

⁶ Coelsch, pp. 128-130.

⁷ Ibid., pp. 114, 127.

⁸ Ibid., p. 130.

⁹ Ibid., pp. 124-126.

¹⁰ Ibid., pp. 119, 121, 123.

CHAPTER VIII.

THE SYSTEM OF INDUSTRIAL SCHOOLS.

German industrial schools took their rise in the Sunday afternoon and evening schools which had existed for several centuries in some parts of the country, dating back in one Baltic district as early as 1569.¹ They were used to supplement the imperfect general education of the working boys and girls. Attendance was made compulsory up to the age of 18 or even until marriage, but this provision was not enforced. The Sunday afternoon schools were at first chiefly concerned with religious teaching, but later they became general continuation schools,² concerned merely to reiterate the lessons taught in the common schools, with perhaps some slight advance. Still later more and more industrial and commercial training crept in, as also into the evening schools. The schools in their early days were far from successful on account of the lack of rooms in which to meet and of equipment, the ill-assorted nature of the pupils, and incompetency of the teachers. The industrializing of many of these schools improved matters somewhat, but the fact that throughout almost all Germany to-day strong attempts are being made to abolish evening and Sunday instruction in favor of day instruction, even for apprentices at work, indicates that the drawbacks were serious. Many of the Sunday schools gradually differentiated themselves into drawing, trade, commercial, mechanical, and art schools.³

In Prussia the medieval restrictions on trade and industry were abolished and industrial freedom (*Gewerbefreiheit*) attained in 1810, almost half a century previous to the change in the other German States.⁴ Apprenticeship declined under industrial freedom and extensive competition, and the need of supplementary means of training was felt. Industrial improvement schools⁵ were established, meeting evenings and Sundays at first, and these struggled on until the industrial law of the North German Union in 1869 gave localities the right to require compulsory attendance of all male workmen under 18 years of age.⁶ In 1874 the final factor of success was added in annual Prussian appropriations and an official statement of principles for the conduct of such schools.

¹ Sadler, M. E., editor: *Continuation schools in England and Elsewhere*. Manchester, 1907, ch. 3, p. 520.

² See preface.

³ Spec. con. reps., vol. 33, p. 13.

⁴ English Bd. of Educ. Educational Pamphlet No. 12. *Compulsory Continuation Schools in Germany* 1910, preface.

⁵ Eng. Bd. Educ. Educ. Pamph. 18, preface, p. 2.

The States of central and south Germany, after the establishment of the German nation, felt the need of better cultural and civic training for their masses. They accordingly established general improvement schools, whose sessions were at first on Sunday and in the evenings.¹ Bavaria had had improvement schools with compulsory attendance for both boys and girls since 1803. The new schools did not succeed very well until the curricula were remodeled to center around the vocations of the pupils,² and the schools thus became primarily industrial schools. They have remained, however, more cultural and less technical than the Prussian schools.

From the early general Sunday and evening schools, and the industrial Sunday and evening schools which became differentiated from them, or were established in the light of their example, arose during the nineteenth century a great variety of industrial schools ranging from the improvement schools for youthful workers to the highly advanced and scientific technical high schools (*Technische Hochschulen*).³ The majority of these industrial schools were established by private individuals, guilds, trade-unions, merchants' associations, and towns.⁴ This fact, and the loosely united condition of the German States during most of this development, resulted in great diversity in the types of schools and much wasted effort. The nineteenth century was preeminently the period of experimentation in industrial schools. After the German nation was founded these schools, stimulated by the remarkable industrial and commercial development, went forward with leaps and bounds. But they are still essentially local in their control and support, and there is not as yet a unified system under central control.⁵ Indeed, any *system* of industrial schools can be spoken of, as in the title of this chapter, only in the most general way, and for lack of a better term to indicate their general features and relations. So far as unity exists, it is due chiefly to the action of the National and of the State Governments, and to the forces of example and imitation, these latter working largely through the association of the German industrial school men (*Verband deutscher Gewerbeschulmänner*).⁶

All German children are required by law to attend the common school (*Volkschule*), or an accepted substitute, from the age of 6 or 7 to that of 14 years.⁷ This common school is much like our own, differing chiefly in that religion is given a prominent place, and a slight fee is charged; it is divided into separate classes, though with equally good teachers, for pupils of different pecuniary rank (by charging different school fees); and like German schools in general, teaches fewer subjects than we do, but these with greater thoroughness. Some

¹ Sadler, p. 518.

² Eng. Bd. Educ. Educ. Pamph. 18, preface, pp. 3, 4.

³ Spec. cons. rep., vol. 22, pp. 12-16.

⁴ Ibid., p. 18.

⁵ Ibid., pp. 12-16.

⁶ Ibid., pp. 15, 134.

⁷ With minor exceptions. Ibid., p. 5

common schools offer prevocational work, such as elementary drawing and work in paper, basketry, wood and iron (for boys), sewing and cooking (for girls).¹ At his tenth year, the parents of a boy in the common school must decide whether he is to continue his schooling beyond the compulsory attendance in that school. If so, he will leave the common schools at once and enter one of a number of types of school which offer themselves. If he is to be classically trained (with both Greek and Latin) he will enter the Progymnasium for its six-year or the Gymnasium for its nine-year course. If his training is to be semiclassical (including Latin, but not Greek), the Realprogymnasium offers him a six-year, and the Realgymnasium a nine-year course. If a liberal or modern training is desired, he will enter the Realschule for a six-year or the Ober-realschule for a nine-year course. Of these, in turn, all the nine-year courses admit to the appropriate faculties of the universities and to the technical and commercial high schools. The six-year courses are largely attended and completed, for the reason that their completion (or six years in a nine-year school) and the passage of an examination are rewarded by the one-year volunteer army certificate, by which the obligation to serve two years in the army is commuted to service for one year only, as a volunteer and with the chance to become an officer.² These courses are also prerequisite to entrance into many of the higher schools (*höhere Schulen*) of various sorts, commercial, technical, and engineering.

Of distinctly industrial schools there is a great body, with the scientific technical high schools at the summit. These schools are about the equivalent of our best colleges and university departments of engineering and other applied sciences. They train the technical leaders of industry. In them, probably more than in our universities, scientific investigation is given a very important place. Below them stand the middle technical and trade schools, of which there are many sorts: Mining schools (*Bergschulen*), building schools (*Bauwerkschulen*), textile schools (*Textilschulen*), schools of machinery (*Maschinenbauschulen*), and other schools for the metal industry, industrial art schools (*Kunstgewerbliche Schulen*), and other lesser groups.³ These middle schools are of two main types, the higher and the lower.

The higher middle technical schools are designed to train leaders of industry, but with a less thorough preparation than that offered by the technical high schools. As a rule, they require the completion of a six-year general course, such as secures the one-year military certificate, and at least two years of practical work in the student's

¹ Rep. of the N. J. Commis. on Indus. Educ., 1909, p. 172.

² Spec. cons. rep., vol. 23, p. 8.

³ Cf. *Gewerbliche Fachschulen in Preussen, hrag. v. kgl. Landesgewerbeamt*, 1909.

trade.¹ They are probably the approximate equivalent of our technical schools, colleges, and universities of less exacting standards. In them about two-thirds of the engineers of Germany are trained, only about one-third coming from the technical high schools.²

The lower middle technical schools are designed chiefly for the training of practical working master tradesmen, technicians of lower grade, for supplementary training of foremen (who generally rise from the ranks), and the like. They require for entrance several years practice of the trade to be studied and throughout their work emphasize the practical side. In Prussia, the technical middle schools, higher and lower, are more fully developed than in south Germany. The industrial art schools are a special type, in that they train those engaged in many different trades and industries in the application of art and of design to their several trades.

Of all those engaged in industry, only a small minority attend any of the above-mentioned schools. Nor in these schools do we find such great differences from our own technical schools of various grades. It is in the industrial schools for the masses of workers that Germany excels and with respect to these schools that we have most to learn from her. These, the lower industrial schools, are of two main sorts, day trade schools and improvement schools. The relations of some of these schools to each other and to other schools are often exceedingly close. They may use the same building, have the same teachers, and the same management and support. Where there are but few workshop facilities available, or where the improvement schools utilize workshops also, instruction in the lower trade schools may differ but little from that of the improvement schools, except as to length. But throughout Germany the attendance at day trade schools is but a fraction of that at improvement schools. This is because few boys who go into industry as ordinary workmen can afford to study so long without earning, and because there is ordinarily no necessity for so doing by reason of the training to be received as an apprentice and in industrial improvement schools. There is also, as we shall see, serious question by many employers in industry as to the advisability of such schools for the training of the rank and file of workers. As a general rule, these lower day trade schools for workmen do not constitute substitutes for apprenticeship; but a few such schools, according to Dr. Kerschensteiner, for wrought-iron workers, machine builders, joiners, weavers, plumbers, etc., do take the place of apprenticeship.³

The type of school which supplies the great bulk of the training of the mass of workers, supplementary to the training derived from their

¹ Kerschensteiner, Georg. *Three Lectures on Vocational Training; delivered in America under the auspices of the Nat. Soc. Promot. Indus. Educ.*, 1911, p. 20.

² *Spec. cons. reps.*, v. 33, p. 277.

³ Kerschensteiner: *Three Lectures, etc.*, p. 33.

work itself, is the industrial improvement school (*gewerbliche Fortbildungsschule*). In this school the majority of workers receive their first and only industrial training imparted by any school. German improvement schools are now of three forms: General, industrial, and commercial (*allgemeine, gewerbliche, and kaufmännische*). These schools, as we have seen above,¹ were originally all general schools and of a type which aimed merely to continue and perhaps slightly expand the common school training. Such schools are now becoming a less and less important part of all *Fortbildungsschulen* and are also adding new subjects to their curricula, as civics, hygiene, studies of transportation, etc. Their organization varies from place to place. In some important cities there is no such school, and such few general classes as are held are a part of the industrial improvement school. The recent great growth of the industrial schools is a striking fact. Those youths engaged in industry attend the industrial, and those in commerce, the commercial improvement school; whether attendance is compulsory or voluntary, youths naturally attend the schools organized for their type of occupation.

The relative importance of day trade schools, of improvement schools, and of the various types of improvement schools, is indicated by the following figures. There were in Germany, in 1906, about 130,000 pupils in general improvement schools; 206,000 in industrial improvement schools (including some called trade improvement schools—*fachliche Fortbildungsschulen*); 40,000 in (day) trade schools; 53,000 in commercial schools; 67,000 in agricultural schools; 71,000 in girls' general continuation schools; and 23,000 in girls' trade schools.²

By the National Industrial Law, established in 1891, compulsory attendance was provided for, and the improvement schools thus greatly prospered. This law provides as follows:

The undertakers of industry must allow to their workers under 18 years of age who attend an institution for instruction recognized by the community authorities or by the State as an improvement school the necessary time for this purpose, as specified by the appropriate authorities. The instruction may be on Sunday only when the hours of instruction are so set that the pupils are not hindered by them from attending the chief religious service, or a service of their confession especially established for them with the consent of the religious authorities. * * * Institutions in which instruction in woman's hand and house work is given are improvement schools in the intention of these regulations.

A community or a wider union of communities (*Kommunalverbandes*) may, by national statutory regulations, so far as regulations are not established by the separate States, require the attendance at an improvement school of male workers under 18 years, as well as of female commercial clerks (*Handlungsgehilfen*) and female apprentices under 18 years. In the same manner the necessary regulations may be made for the enforcing of this obligation. In special, regulations may be made by statutory

¹ Kerschensteiner: *Three Lectures*, etc., pp. 1-3.

² Sadler: *Continuation Schools*, ch. 18, table II.

provisions to insure a regular school attendance, as well as to regulate the duties of parents, guardians, and employers; these regulations and suitable deportment may be enforced in the improvement school. Those individuals are freed from the statutory obligation to attend an improvement school who attend a guild or other improvement or trade school, so far as the instruction of these schools is recognized by the higher administrative authorities as an adequate substitute for that of the general improvement schools.¹

The several German States have reserved to themselves the full regulation of their school affairs and so the above national law has no compulsory force and is permissive only.² Great results have, notwithstanding, followed it; for in those States which have no law regulating improvement schools the national law, in conjunction with local ordinances, has in many localities provided compulsory attendance. The national law, and the compulsory attendance provided under it for some schools, has also served as an example to the States, and has stimulated them also to legislate for compulsory attendance. On the basis of the national law and local ordinance, where such local ordinance exists, employers must allow time for the school attendance even of those workers who attend voluntarily.³ The national law further provides that in localities where a trade school recognized by the State or communal authorities exists the obligation of the employer to insure time to his youthful workers to attend a school recognized as an improvement school (as sec. 120 above) applies to such trade schools also.⁴ The manager (*Geschäftsinhaber*) must hold his apprentices and journeymen under 18 years to attendance on the improvement and trade schools and must watch over their attendance. These provisions (in secs. 120 and 139c) are enforceable against employers or parents by fine of not to exceed 20 marks (\$4.80), or in case of inability to pay, by imprisonment, not to exceed three days for each infringement.⁵

Almost all the States have legislated on the subject of the improvement schools, and their main requirements in 1909 are set forth in the accompanying table.

¹ R. G. O., sec. 120, pp. 380-384.

² Baar, Ewald: *Die deutsche Fortbildungsschule im Jahre 1909*, p. 1.

³ R. G. O., sec. 120, notes, p. 382. (Hoffman edition.)

⁴ *Ibid.*, sec. 139f, pp. 482-3.

⁵ *Ibid.*, sec. 150, 4. pp. 503-4.

German State laws on compulsory attendance at improvement schools (1909).¹

	States, with approximate population (1906).	Minimum attendance compulsory for boys.	Minimum attendance compulsory for girls.	Remarks.
1	Prussia *..... (37,000,000).	.....	.....	In Posen and West Prussia, the minister of commerce and industry may make attendance compulsory.
2	Bavaria..... (6,600,000).	For 3 years, 2 or 3 hours a week, in Sunday school; or in improvement school, where the community so chooses.	Same as for boys.....	
3	Saxony..... (4,600,000.)	For 3 years, 2 or 3 hours a week.	Only by community action; then not over 2 years.	
4	Württemberg..... (2,300,000)	For 2 years, 2 hours a week, 40 weeks a year. If community be excused from establishment of an improvement school, then 3 years in Sunday school.	Same as for boys.....	Every community with 40 boys under 18 years in commerce and industry, must establish an industrial improvement school, and such boys must attend it for 3 years, 280 hours a year (may be 4 years for special trades).
5	Baden..... (2,000,000)	For 2 years, 2 hours a week.	For 1 year.....	A community may require compulsory attendance of both sexes through their 18th year at industrial or commercial school.
6	Hesse..... (1,200,000)	For 3 years, 4 hours a week, 4 or 5 months.	A community may establish an improvement school for girls.	
7	Mecklenburg-Schwerin *..... (625,000)	In cities for hand worker apprentices, through their apprenticeship.	.....	Industrial schools to have courses for 3 years or more, 8 hours a week.
8	Mecklenburg-Strelitz *..... (103,000)	.....	.....
9	Saxe-Weimar..... (388,000)	For 2 years, twice a week at least in winter; not over 6 hours a week.	A community may require attendance for 2 years up to 6 hours a week.	
10	Oldenburg *..... (438,000)	.....	.....
11	Brunswick *..... (485,000)	.....	.....	Attendance through compulsory term in which 18th birthday is reached. Compulsion may be established by the State, for improvement schools not public institutions, and single groups of industries, on motion of those concerned.
12	Saxe-Meiningen..... (206,000.)	For 2 years, 4 hours a week.	Same as for boys.....	
13	Saxe-Altenburg..... (206,000.)	For 2 years; full year, 2 hours a week, or 4 or 5 months, 4 hours a week.	A community may establish an improvement school for girls.	

¹ Compiled from data in Bear, pp. 3-82.² No law, except for miners. National industrial law thus in force for miners (secs. 120, 1391, 142, 150). Section 120 permits localities to require attendance.³ State approval necessary to establishment of local compulsion.⁴ Law reiterates national industrial law.⁵ No law. National industrial law thus in force.

German State laws on compulsory attendance at improvement schools (1909)—Continued.

	States, with approximate population (1906).	Minimum attendance compulsory for boys.	Minimum attendance compulsory for girls.	Remarks.
14	Saxe-Coburg-Gotha..... (242,000.)	Coburg: For 2 years, winter months, 2 hours a week. Sachsen-Gotha: For 3 years, 2 hours a week through the year, or 4 hours a week for 4 or 5 months.	Coburg: A community may require compulsory attendance for 2 years. Sachsen-Gotha: A community may require compulsory attendance.	Similar to law of Prussia.
15	Anhalt ¹ (328,000.)			
16	Schwarzburg-Sondershausen..... (85,000.)	For 2 years, 4 hours a week (in special cases, 2 hours), 4 to 6 months.	A community may establish an improvement school for girls and require attendance (compulsion may be limited to those in industry).	
17	Schwarzburg-Rudolstadt. ² (97,000.)			A community may require attendance for 2 or 3 years.
18	Reuss (senior line) ³ (70,000.)			
19	Reuss, (junior line)..... (145,000.)	If superior school authorities so decide, for 2 years, 2 hours a week through the year, or 4 hours a week for 6 months.	A community may establish an improvement school for girls.	
20	Lippe ³ (145,000.)			
21	Schaumburg-Lippe ³ (45,000.)			
22	Waldeck..... (50,000.)	For 2 years, 4 hours a week.		
23	Lübeck..... (106,000.)	For all apprentices through their apprenticeship; all the year 8 hours a week, or winter months alone 12 hours a week. For commercial apprentices and clerks through their eighteenth year.		
24	Bremen..... (263,000.)	For 3 years (no minimum; 4 to 6 hours a week maximum); unskilled workers excepted.		
25	Hamburg ³ (875,000.)			
26	Alsace-Lorraine ³ (1,810,000.)			

¹ No law except for miners; national industrial law thus in force for miners (secs. 120, 1394, 142, 150). Section 120 permits localities to require attendance.

² Law reiterates national industrial law.

³ No law. National industrial law thus in force.

Where no law on the subject exists the provisions of the National Industrial Law, as stated above, permit compulsory attendance to be required by any community wishing it. Some States have reiterated the substance of the permission of the national law. Bavaria, Saxony, Württemberg, Baden, Hesse, Saxe-Weimar, Saxe-Meiningen, Saxe-Altenburg, Saxe-Coburg-Gotha, Schwarzburg-Sondershausen,

and Waldeck require all boys in industry or commerce, and not otherwise as well educated, to attend improvement school (in some few cases Sunday schools) for two to three years after their compulsory attendance at common school has ended; Mecklenburg-Schwerin, Reuss Jungere Linie, Lubeck, and Bremen make similar but variously qualified requirements. Only a few States require girls to attend improvement (or Sunday) schools—Bavaria, Wurttemberg, Baden, and Saxe-Meiningen (Sadler says also Waldeck and parts of Prussia).¹ As a rule, the compulsion is for attendance on a general improvement school, though sometimes on an industrial or commercial school. Those are excepted from the requirement who are receiving at least an equivalent education otherwise. Attendance at a school approved as a substitute for the improvement school frees ordinarily from the obligation to attend that school. For a summarized statement of the extent of improvement schools let us take that of Dr. Kerschensteiner:

In south Germany there is no city or town, however small, without one such school at least for all boys. In north Germany the great industrial town of Essen is the only larger town in which such a school is wanting.²

The industrial improvement schools are generally not to be called trade schools.³ Few of them, the country through, have many workshops, and none or practically none of them attempt to act as substitutes for apprenticeship. They are technical schools, seeking to impart the "why" and "how" of the trades, or part technical, part general schools. We shall see more fully in the succeeding chapters of what nature these schools are and what results they are accomplishing. Throughout, let it not be forgotten that these schools merely supplement, and aim merely to supplement, the training received in apprenticeship, even though this service be highly important.

After the industrial schools of various types had been established the State followed the example of the individuals and groups who had founded them and founded or aided in the founding of similar schools and obtained year by year more and more control over all these schools. This was largely done by means of providing subsidies for the industrial schools, to obtain which they must meet certain requirements with regard to grade and kind of work and the like, and submit to certain supervision. Inspectors enforce the State requirements. Thus the State tends to unify and standardize these schools, as well as to add greatly to their available funds. Certain modes of support are typical, though particular arrangements vary greatly from place

¹ Sadler, *op. cit.* 18, p. 517.

² Kerschensteiner: *Three Lectures, etc.*, p. 9. Essen has had a voluntary industrial improvement school since 1845. In 1910, at request of the guilds, this was made a compulsory school.

³ Certainly not in the American sense of the term; see preface.

to place and school to school. Distinctly local schools are usually supported chiefly by the community with aid from State subsidies (except, usually, in case of improvement schools), while guilds, associations, and unions often contribute lesser amounts (though in some cases a large share). The higher schools receive usually large State support on account of their service to a wide district. The boards of directors include in most cases representatives of the industries concerned, or some of them (usually guild members), city officials, and representatives of any other contributors.

The State administration and supervision has been vested both under departments or ministries of education and those for commerce and industry. The result of many experiments and repeated changes is in most cases the supervision of the industrial schools by a different body from that set over the other schools and one representing the interests of industry. Only thus, it was found, could the industrial schools be kept from becoming academic, true to their name and purpose, and be made practical and adjusted to the changing needs of industry. Cooperation, in the form of assistance and advice, of the educational authorities was found essential, however, to efficient operation of the schools, and this is now usual.¹

Industrial schools for girls and women are still greatly lacking. Housekeeping schools and schools training for women's industries, as millinery, dressmaking, etc., and for domestic service, are found in many places. Commercial schools are one of the most numerous classes of schools for girls, while general improvement schools exist in many places. The present tendencies toward more improvement schools for girls are directed more toward the establishment of commercial than of industrial schools. There is probably to-day greater need in Germany for industrial schools for girls and appropriate compulsory attendance on them than for any other advance in industrial education.

¹ Spec. cons. reps., vol. 33, pp. 137, 138; Rep. N. J. Commis. Indus. Educ., p. 175; Baar, pp. 3-82.

CHAPTER IX.

THE INDUSTRIAL SCHOOLS OF HAMBURG.

Hamburg, a city of some 802,000 population (1905) and one of the chief ports of the world, is situated near the mouth of the Elbe River. Originally a member of the Hanse union, the city is now one of the constituent States of the Empire, as the proud name of *freie und Hansa Stadt Hamburg* gives evidence. Primarily commercial, and, because of its location and tariff-free portion of the harbor, a great port for transshipment; it is now beginning also to see the growth of a thriving industrial life. The chief groups of industries, with approximate numbers of workers engaged in each, are: Machine industries (22,000); foodstuffs (8,900); metal working (6,700) (machine and metal working industries include about 10,000 engaged in shipbuilding); wood working (6,600); clothing (5,800); book printing and type casting (4,400); leather (4,200); fine lingerie (2,900); cleaning industries (2,900); forest products, fats, soaps, oils, etc. (2,700); building (2,500); chemical industries (2,200); painting, lacquering, etc. (2,000).¹

Until recent years there were a number of guild industrial schools in Hamburg, and a few of these still survive, the guilds concerned requiring and enforcing the attendance of the apprentices under them. But for the most part, as the city has extended its activities in the field of industrial education, the guild schools have been taken over by the city and now constitute a part of the public system of industrial schools. This change has been satisfactory to the guilds as to all others concerned.²

The chamber of industry was established in 1903 and still continues theoretical master courses (Meister-kurse).³ There were in 1910 13 such courses for different industries and groups, each including about 30 independent handworkers and journeymen (who must be 24 years old). The purpose of these courses in the improvement of handworkers in general, and especially the preparation of young handworkers for the master's examination (Meisterprüfung). The courses meet ordinarily week-day evenings from 8 to 10 o'clock, and the whole course includes at least 40 hours of class work. The teachers are taken from higher schools, and thus are above the ordinary grade. They are assigned classes in related industries so

¹ Total 84,374. *Jahresbericht der Hamburgischen Gewerbekammer für 1910*, pp. 76-81.

Dr. Rudolf Görnandt, a director of the Hamburg Gewerbekammer.

² *Jahresbericht Gewerbekammer, 1910. Anhang*, pp. 6-40.

far as possible, that each may adapt himself to the special needs of that group of industries. The subjects treated are industrial book-keeping, notes, bills of exchange, etc. (*Wechseellehre*), industrial calculation (of costs, etc.), and law (the chief provisions of the industrial law, of the industrial insurance laws, of the law of associations, and of other laws especially applicable to handworkers). The attendance on these courses in 1910 was 390, from 15 different industries (with only 4 per cent of absences).¹

Since 1906 the chamber of industry has established also practical master courses.² The purpose of these courses is not the training of journeymen to become masters, nor any elementary training at all, but rather the education and practice of masters in the latest developments in their respective industries. This includes training in the use and desirability of the most modern machines, simple investigations of materials, technical, scientific, and industrial art lectures and practice to give an up-to-date viewpoint, and the like. There were 25 courses for 14 industries in 1910. A few titles of classes are: Concrete construction (2 classes), investigation of baker's materials, large scale production of shoes, automatic welding and cutting of metals (4 classes). These classes usually meet Sunday morning from 8 to 12, or week-day evenings from 6 to 11. The total number of class hours averages about 32 for each course. The teachers are engineers, architects, chemists, painters, and other experts. The attendance in 1910 was 295, the men ranging in age from 25 to 60, and averaging perhaps 35 to 42 years.³ The interest of the participants was very great, promising important results on industry.

The city of Hamburg has what may truly be called a system of industrial schools, fairly comprehensive in its scope. It includes the following:

(1) A building trades school (*Baugewerkschule*) with department for underground construction.

(2) A *technikum* or technical school, including (a) a higher machine builder's school (*höhere Maschinenbauschule*), (b) a higher school for construction of ship machines (*höhere Schule für Schiffsmaschinenbau*), (c) a higher shipbuilder's school (*höhere Schiffbauschule*), (d) a higher electrical school (*höhere Schule für Elektrotechnik*), and (e) a school for ship's engineers (*Schiffingenieurschule*).

(3) An industrial art school (*Kunstgewerbeschule*).

¹ The courses cost about 4,106.77 marks (\$986.34), of which about half (2,057 m.) came from fees of 5 marks per participant. *Jahresbericht Gewerkekammer, 1910, Anhang, p. 39.*

² *Jahresbericht Gewerkekammer, 1910, Anhang, pp. 41-74.*

³ The total cost in 1910 was 14,248.79 marks (\$3,419.67), of which 2,114 marks (\$507.36) was met by fees. The balance was paid by the chamber of industry from funds furnished by the city for the promotion of industry. The average costs (in excess of fees) were: For each course, \$116.49; for each participant, \$9.87; for each class hour, \$3.65. *Jahresbericht Gewerkekammer, 1910, Anhang, p. 78, 74.*

- (4) A wagon builders' school (Wagenbauschule).
- (5) A day industrial school.
- (6) Eleven evening and Sunday industrial schools.
- (7) Eight commercial improvement schools.
- (8) An improvement school for girl and women clerks.

I visited all of the above schools except the last 2, and including 2 of the 11 evening and Sunday schools.

The building trades school is a day technical school of middle grade, preparing the graduates of its two and one-half year courses for technical positions, or in connection with practical training, for positions as master builders. It has no shops; drawing, mathematics, and design are prominent in its curricula. Many of its students attend only during the winter half year, working at their trade during the summer, as shown by the attendance of 146 students in summer term 1909, but 405 in the winter term of 1909-10.¹

The technikum is a type of the middle technical schools which train about two-thirds of the German engineers.² For entrance³ the military volunteer certificate must be possessed, involving the completion of six years' work in a secondary school,⁴ and two years of practical work; or certain other equivalents. The subjects taught are similar to those in technical colleges in the United States. The courses last but two years; but since the students are allowed only the short vacations usual in industry, since they have all had practical experience, and thus are given no shopwork, and since their practical training enables them to grasp the theoretical with the minimum of difficulty, this period proves sufficient to turn out well-equipped men. During the school year 1909-10 an average of 328 students attended the technikum. The cost of this school to the city, on account of the high salaries of the necessarily very well-equipped teachers, is the greatest of all the city schools.⁵ The graduates are quite uniformly able to secure good positions.

The industrial art school seeks, in its day classes, to train in drawing, painting, sculpturing, and the like, and in industrial design, primarily those persons engaged in industry who have completed their apprenticeship, and also apprentices. There are both day and evening classes. Some classes adapted to special trades are those in interior architecture, glass painting, etching, bookbinding, photography, embroidery, and weaving. Much of the students' work was excellent, especially the artistic hand bookbinding. That it is practical is attested by their ability to secure good positions.

¹ *Programm der Staatlichen Bauwerkschule für Hochbau und Tiefbau zu Hamburg; and Bericht über das Schuljahr 1909-10.*

² *Staatliches Technikum Hamburg: Programm; and Bericht über das Schuljahr 1909-10.*

³ Except for the Ship Engineer's School.

⁴ Cf. ch. 8, p. 79.

⁵ \$500 to \$800 per student per year. Herr Proben, Technikum.

The wagon builder's school is a small day school, in which about a score of journeymen and master wagon builders receive technical instruction for a year each. They are thus enabled to become designers, masters, and foremen. The trade instruction is imparted by a master wagon builder; while instructors not masters in the trade teach free-hand drawing and other less specialized subjects. The school has now been in existence for 25 years, and according to Herr Behncke, its head teacher, is so successful that in the fall of 1911 a similar school for smiths was to be opened.¹

The day industrial school and chief Sunday and evening industrial school occupy the same large building, centrally located, where are also the technikum, building trades school, and industrial art museum. Classes are held during the daytime, evenings, and Sunday morning. These two schools consist of 14 trade schools for 20 trades, attendance at which is compulsory for apprentices of guild members, and of classes for voluntary attendance. The trade schools, in the winter term 1909-10, included 2,381 students, chiefly apprentices, while the voluntary classes included 1,618 students (1,186 apprentices, 287 journeymen, and 145 others). The subjects taught are almost all technical, and there are but few workshops. Trade drawing is taught separately for 17 trades, and similar specialization of other subjects is the rule. The number of hours of instruction per week varies from 5½ to over 9 for voluntary pupils, and 3 to 18 (the latter for painters and lacquerers), with an average of about 8 for the compulsory trade schools.²

The so-called small industrial schools are scattered through the city in 10 common-school buildings.³ They include evening and Sunday schools with special courses for the several trades; apprentice trade schools, attendance on which is enforced on their apprentices by guilds and guild members concerned; and incidentally, classes for common-school boys in free-hand geometrical and projective drawing. A total of 3,560 pupils attend all these schools (winter, 1909-10). Only apprentices and other youthful workers are accepted as pupils, except in the drawing classes for school boys.

The evening and Sunday schools are attended voluntarily and offer six hours of instruction weekly, from 7 to 9 one evening a week, and from 8.30 to 12.30 Sunday morning. The subjects offered are: German, arithmetic, bookkeeping and law, writing, study of geometrical forms, algebra, geometry, trigonometry, free-hand drawing, geometrical drawing and projection, and trade drawing for builders, machine builders, electricians, wrought-iron workers (Schlosser) ;

¹ *Lehrplan der Staatlichen Wagenbeschule zu Hamburg; and Lehrplan der Deutschen Schmiedeschule zu Hamburg.*

² *Staatliche Hauptgewerbeschule, Tagesgewerbeschule, und Wagenbeschule zu Hamburg. Bericht, 1909-10.*

³ *Staatliche Gewerbeschulen Bismarkstrasse usw. zu Hamburg. Bericht, 1909-10.*

⁴ A hard word to translate. Not "locksmith" as ordinarily rendered, but representing one engaged in a roughly defined range of operations, between the smith and the machinist, concerned perhaps as much with wrought-iron as with anything else.

plumbers, and machinists. What these smaller schools lack, their pupils can supplement by added work in the chief industrial schools (161 did so in 1909-10).

The trade schools, like those in the chief industrial school, have been established only when the cooperation of the chamber of industry and of the guild or guilds concerned could be secured. The school authorities and the guilds agreed on a curriculum, and the guilds enforce attendance of their apprentices throughout their apprenticeship, being aided in this by the chamber of industry.¹ Eight hours of instruction are given weekly; four hours on Sunday morning, and four hours on two evenings from 6 to 8 (for wrought-iron workers), or on one afternoon from 3 to 7 (for plumbers). There are two of these schools, one for wrought-iron workers (Schlosser) including 447 pupils (in winter 1909-10) in four different buildings, and one for plumbers and related trades, having 686 pupils in the one building. The subjects taught in the ironworkers' school are drawing, study of industry (Gewerbekunde), arithmetic, business composition, book-keeping, and civics (Bürgerkunde), all taught with special reference to the trade.

The curriculum of the apprentice trade school of the plumbers and related trades, which is typical of that of the other trade schools, includes four years of work, so arranged, however, as to meet the needs of those who complete apprenticeship in three years and thus may no longer be required to attend. The scheme is as follows:

Curriculum of the apprentice trade school of the plumbers and related trades.

Subjects.	Number of hours weekly.			
	First year.	Second year.	Third year.	Fourth year.
Industrial drawing.....	4	4	4	5
Study of industry.....	1	1	2	1
Industrial arithmetic.....	2	2	.....	1
Business composition.....	1	1	.....	1
Bookkeeping and calculation.....	.....	.....	1	.....
Civics.....	.....	.....	1	.....

The drawing so prominent in the course includes geometrical drawing and projection the first year, and after that trade drawing exclusively. The study of industry includes a great variety of data calculated to orient the apprentice in his work and general place in life, such as materials, processes, systems of installation of gas, water, electricity, etc., and a little industrial law. The industrial arithmetic is entirely concerned with practical problems, as the reckoning of wages, costs of industrial insurance, cost estimates, and final reckoning of costs, purchase of materials, notes, and exchange.

¹ The Hamburg Gewerbekammer, unlike most in Germany, supervises factories as well as handwork industries.

Business composition gives practice in writing letters or forms for various business purposes, in which the practical end is given first place. The bookkeeping includes a little cost accounting. Finally, the civics class adds a little to the minimum data on industrial law and the like in the study of industry, in familiarizing the apprentices with certain laws, branches of government, industrial and public duties. There are no workshops in this school, though numerous models aid in its instruction.¹

The instruction is partly by professional teachers, partly by masters in the trades concerned. The latter give all the trade drawing. The teachers are paid only 3 marks (72 cents) per hour class in the daytime, and twice this amount in the evening.

Attendance on any of these schools is not compulsory by either State or other public authority. Attempts to require attendance by State action have so far² failed. According to section 120 of the National Industrial Law,³ and a State law of Hamburg of October 7, 1864, all employers are required to allow their apprentices to attend an industrial school at least six hours a week, if they wish to do so. These laws are not of much force and have but little effect on the attendance. At most they but require the employer to free his apprentices from other duties one evening and Sunday morning, which most would do in any case. Compulsory attendance in Hamburg, so far as it exists, depends solely on guild action, spurred on by the chamber of industry.

About 70 per cent of the Hamburg guilds are compulsory.⁴ These guilds require all their apprentices to attend the evening and Sunday or other industrial schools throughout their apprenticeship, or so long as the course lasts. This compulsion is effectively enforced through the several masters, members of the guilds in question, by means of fines imposed by the guild on masters whose apprentices are irregular in attendance or fail to attend the school. The chamber of industry has also exerted pressure on negligent masters successfully. The voluntary guilds seek likewise to enforce attendance in their respective industries, but can do so only for their own members. Industrial enterprises aggregating over 35,000 masters and workers have no manner of compulsion on attendance of their apprentices.⁵ This is the weak spot of the system, and one that will probably be changed in time in favor of city (State) compulsion.

¹ This curriculum was obtained from a manuscript furnished by Herr Schulinspektor August Kasten. The school to which it refers was inspected in many classes by the author, under his guidance.

² Latest data, 1911.

³ Cf. *oh. 8*, p. 32.

⁴ In 1910 there were 8,604 masters and 34,116 masters and workers together in and under compulsory guilds; 1,335 masters and 14,691 masters and workers together in and under free guilds. *Gewerbekammer Jahresbericht*, 1910, p. 66.

⁵ *Gewerbekammer Jahresbericht*, 1910; worked out from figures on pp. 65, 81.

Some of those apprentices and other youthful workers not required to attend do so voluntarily. Thus the machine builders' guild is free, but every apprentice in this trade attends the evening industrial school, because the mechanical drawing there taught is absolutely necessary to him in his work. Another incentive to voluntary attendance on these schools is the need of the apprentices for the training there received, if they are to pass the journeyman's examination, or later the master's examination. These examinations, which are both practical and theoretical, can in most cases be passed only by those apprentices and journeymen who have attended these schools. In 1910, 483 apprentices passed the journeyman's examination and 167 journeymen the master's examination.¹

Most apprentices in Hamburg attend an industrial school voluntarily or otherwise; so there can hardly be said to be a special demand for their students. The employers are able to obtain a larger number of skilled workers than if there were no industrial schools in the city. The skilled workers available for industrial purposes are steadily increasing in numbers, and in those industries where skill is demanded a steadily growing proportion of workers is found who have passed the master's examination.² The industrial schools are found to stimulate the interest of the boys in their work. The chamber of industry states of the iron workers' classes that they have had a very beneficial influence on the journeyman's examination piece,³ which indicates principally practical, but also theoretical, ability. This influence was probably exerted chiefly through the drawing classes.

School products are very seldom sold, both because not much work is produced, which is of such sort and quality as to be readily marketable, and because the schools have no selling facilities. Even where these conditions are absent, the schools would sell but few products for fear of competing with and antagonizing the guilds.

None of these schools unduly increase the number entering a given industry, because none of them accept students who have not worked in the industry in question or are not at the time so working. Teachers who attend these schools as students and school boys in preliminary classes are excepted from this rule. The schools do not shorten the period of apprenticeship, for this is determined by the chamber of industry for all trades, according to the national industrial law on apprenticeship. The usual period of apprenticeship in Hamburg is four years. A shorter period is allowed in any individual case only by permission of the chamber of industry and usually on the payment by the apprentice to his employer of a specified sum instead of wages being paid him. This payment is made because the employ-

¹ Gewerbeammer Jahresbericht, 1910; worked out from figures on pp. 61, 62.

² Dr. Görnandt, Gewerbeammer.

³ Gewerbeammer Jahresbericht, 1910. Anhang, p. 5.

ers say the boy is not worth much the first two or three years and that their profit occurs chiefly in his last (usually fourth) year of service. Thus the monetary difference to the boy may be in a typical case equal to two and a half (or three) marks a week foregone the first year, three (or four) the second, and four (or five) the third, or 475 (or 600) marks total, plus 150 marks paid to the master, or 625 (or 750) marks total (\$150 or \$180).¹ Such shortening of apprenticeship usually occurs in the case of a boy whose parents have money enough to advance him thus more rapidly, especially if he has continued in school beyond the common school.

All classes of people in Hamburg are, as a whole, favorable to the industrial schools; teachers and directors of the regular schools, employers and guilds, unions and workmen, parents and pupils. The parents of all classes are most heartily in favor of them, and it is from the parents that the greatest demand for their establishment has come. Not all individual employers are favorable, but as a class they are so in each trade and in all trades collectively. The consensus of opinion in the entire city is decidedly favorable to the industrial schools.

Their expense is not felt as a heavy burden by the taxpayers, but as money well spent, though the schools are expensive. The city (State) pays all the expenses of these schools, outside of the small sums received for tuition from pupils. The evening and Sunday schools require 10 marks (\$2.40) tuition a half year, the higher schools naturally more (the *technikum* 72 marks (\$17.28) a half year). Neither guilds nor employers aid the schools financially; nor do they supply materials or models, as in some other German cities. In some cases individual masters serve without pay on the school boards.

The modern tendency to specialization in all industries, with its resulting narrowing shop training, is met in some degree by the industrial schools in this manner: The schools teach somewhat of all branches of each trade in the school for that trade, attended by all apprentices who learn but a branch of the trade in their work. Thus they are prepared to understand and later supervise work involving all the branches, even though they be skilled in but a single branch.

In those industries where success depends most largely on the technical training, as in those where the artistic element enters largely (decorating, cabinetmaking, etc.), the employers are most decidedly in favor of industrial schools, and are willing to release their apprentices to attend them in the daytime, during working hours, considering the sacrifice well worth while, in view of the greater skill secured. In the most highly organized industries, however, such as shipbuilding (even though in some of these, as machine and ship building, industrial education such as provided in these schools is of

¹ Herr Schulinspektor A. Kasten.

great value) the employers are as yet usually unwilling to release their apprentices during working hours to attend industrial school. They claim that this disorganizes their factories too much, and that the result is thus not worth the sacrifice.

In the handwork industries also, wherever the benefit from industrial education is not great (chiefly the less skilled handwork), the employers usually consider the sacrifice not worth while and are unwilling to release their apprentices to attend industrial school during working hours. To sum up, the upper and lower grades of industries, in point of skill required and complexity of organization, desire industrial education for their apprentices, but, in the main, only during the apprentice's own time, while the middle grades (including some in the highest grade of skill, but not highest in organization) desire this education for their apprentices enough to release them for it during working hours, when they can receive it to the best advantage.

To look back over Hamburg's industrial schools, we see that she has excellent higher schools, and good lower schools. These lower schools are well adapted to the needs of industry, but greatly need the requirement of compulsory attendance to enable them both to reach the minority, at present neglected, and to require daylight attendance in all possible classes. Compulsory attendance, accepted and successful through large portions of Germany, will probably in time be adopted also in Hamburg, and will add to the efficiency of her already good system of industrial schools.

CHAPTER X.

THE INDUSTRIAL SCHOOLS OF BERLIN.

Berlin, the capital of the German Empire, had in 1905 a population of about two millions, which in 1912 had been increased by the annexation of suburbs to three and one-half millions. The city is thoroughly modern and cosmopolitan. Over half of her population are engaged in industries embracing almost all branches. Among these the metal-working industries are very important, especially the manufacture of machinery and electrical goods. The breweries rival those of Munich in extent.

The city possesses an elaborate system of industrial schools, many of them having attained their present form in comparatively recent years. In 1905 the administration of all the industrial and improvement-schools was placed under a newly established commission for the city trade and improvement schools.¹ The city system of industrial schools includes: (1) Voluntary improvement schools (chiefly commercial); (2) compulsory improvement schools; (3) trade schools for apprentices; and (4) middle (*höhere*) trade schools. The great Royal Technical High School is located in Charlottenburg, a suburb continuous with Berlin. This great institution, specializing in research in applied science, and attended in 1909-10 by some 5,300 students from all parts of the civilized world, represents, with its fellows in other parts of Germany, the pinnacle of German industrial education. I am concerned chiefly with the foundations, however, and so turn to the humble, but no less important, improvement schools.

The voluntary improvement schools, of which there were 33 in 1909-10, are open, some to boys, some to girls, and some to those of both sexes. They are chiefly commercial in nature, and some wholly so. A few have industrial and housekeeping courses for girls, such as design drawing for tailors and for lingerie sewing, repairing, ironing, machine sewing and machine embroidery, tailoring, and millinery. Attendance on these voluntary improvement schools does not free from the obligation to attend a compulsory improvement school, where such obligation exists.

The compulsory improvement schools (*Pflichtfortbildungsschulen*) are 10 in number and have their headquarters in as many chief buildings scattered through the city, though spreading over freely into the common school and other buildings where necessary. Some of these schools, as also some of the voluntary improvement schools,

¹ *Die Deputation für die städtischen Fach- und Fortbildungsschulen.*

were once guild schools, since taken over by the city. Others have been city schools since the year 1799, though not becoming specialized as industrial and commercial schools until the period beginning in 1873. The last stage in their development was the requirement in 1905 by city ordinance, passed under the permissive provision of the National Industrial Law,¹ of attendance of all male industrial and commercial workers² on the compulsory improvement school, from the time of their release from common school until their seventeenth year.³ As stated in the table in chapter 8, pages 83 and 84, throughout most of Prussia attendance on improvement schools is compulsory only by local ordinance. The Landtag had in 1911 a bill under consideration to require compulsory attendance throughout the State, in towns of 10,000 or larger population as well as in cities.

The compulsory improvement school must furnish instruction and require attendance at least four hours a week, but not over six. The classes for unskilled workers extend through four hours for skilled workers, and for boys in commercial work through six hours weekly. The hours set are usually in afternoon or evening though sometimes in the morning, and never later than 8 in the evening. Some classes of skilled workers meet twice a week for three hours at a stretch, some once for six hours. The classes for unskilled workers are usually in the evening.

The subjects of instruction are three: German, arithmetic, and drawing. There are no workshops in these schools. The pupils, all of whom are apprentices or unskilled boy workers, are grouped in classes according to their trades. The unskilled workers are grouped together and receive instruction more general in nature than that given to the apprentices. Their numbers are about one-third of the whole enrollment. Each of the 10 schools has classes for certain groups of trades. Thus the school which I visited⁴ had 14 classes for metal workers, including 8 for wrought-iron workers, 5 for engravers and die sinkers, and 1 for molders. It had 42 classes for the art industries, including 10 for engravers, 9 for braziers, 13 for lithographers, etc., and 10 for bookbinders. It also had 12 classes for the unskilled workers, not separated closely according to their occupation. The total number of pupils in this school in the winter of 1909-10 was 2,940.⁵ Many of the commoner trades have classes in a number of different buildings or in almost all. Where there are but a few apprentices of a trade in a district, classes are formed of

¹ R. G. O., sec. 120; cf. ch. 8, p. 85.

² With minor exceptions.

³ Der gegenwärtige Zustand und die nächsten Aufgaben des Berliner Fortbildungsschulwesens. Stadt schulrat Dr. Carl Michaelis, 1911. Also: Übersicht über das Fach- und Fortbildungsschulwesen der Stadt Berlin, 1909-1910, pp. 61-65.

⁴ Of the second school district.

⁵ Übersicht, pp. 66-71.

those in related trades, or related branches of a trade. Those in commerce are usually in ungrouped classes, though there are some classes for certain branches, as for those in businesses selling iron products.

The compulsory improvement schools of the whole city had in May, 1909, separate classes for the following trades and groups of trades¹ (the number of classes of all grades indicated after each trade): In the building trades, 82—including masons, plasterers, and roofers (15); oven makers (3); woodworkers (45); painters (8); glaziers (6); stone-masons (5). Among metal workers, 234—including in common classes (57); ironworkers (60); machine builders (42); mechanics (57); plumbers (11); molders (7). Of the art trades, 89; made up of classes in common (7); engravers and chasers (12); brass founders (10); lithographers (15); those in bookmaking industries (12); photographers (3); gold workers (5); tapestrers (15); sculptors (6); lacquerers (4). In clothing industries, 31; including tailors (21); furriers (4) shoemakers and saddlers (6). In the food industries, 41; constituted by bakers (23); confectioners (3); waiters and cooks (15). Of barbers and hairdressers, 15; consisting of classes in common (12); wig-makers (3). Of commercial workers, 158; made up of classes in common (149); druggists (4); iron goods dealers (5). Of unskilled workers, 335, all in classes in common; and in certain miscellaneous trades, 17; including dentists (4), musicians (2), and pattern makers (3). The total number of different sorts of classes was 39, practically all of these having a class or classes for each of the three successive years of the course. The total number of separate classes was exactly 1,000, and the average number of pupils to a class was 31.14.

The German taught is identical with study of industry (*Gewerbekunde*), which means that in each class the teacher instructs the apprentices in technical, legal, civic, and other matters pertaining to the trade concerned, incidentally improving their oral expression. The students then write in their note books from memory an account of the subject just treated, and the teacher thus is able to correct their written expression. In some few classes, where the need is greatest, a little physics is taught by lecture and demonstration under the name of German or study of industry.

The arithmetic is a continuation of that of the common school, but taught with special reference to each trade or group of trades. The drawing is partly free hand, partly mechanical, and is also specialized to meet the special needs of the several trades. The type of instruction in general, and the ground covered, shows clearly the origin of these schools as variations from the older general continuation schools, whose function was to conserve and repeat the training of the common school, and if might be, to add slightly to it. As a con-

¹ *Übersicht*, pp. 96-99.

cession or adaptation to practical needs, the German and arithmetic were specialized, and applied to industrial needs, and drawing was introduced.

The teachers are most of them professional teachers, selected from the best in the common schools. Some classes, especially drawing, are taught by practicing masters or journeymen, who must (as elsewhere throughout Prussia) attend a short pedagogical course before they begin to teach. There is some difference of opinion between the school authorities and the masters, as represented in the chamber of industry, as to the proportion of teachers in these schools who are professional teachers and tradesmen, respectively. The school directors tend to exaggerate the number of practical men; the masters to underestimate their number. In 1909-10 there were 732 teachers in these schools, of whom 19 were artists, 11 were masters in handwork, and 69 were engineers, architects, technicians, and the like. The remaining 633 were professional teachers of different grades.¹ The masters, however, are not satisfied with the number of practical men teaching, nor with the extent to which the instruction is practical and adapted to the needs of industry (*fachlich*). They also wish more subdivision of classes, to meet the needs of specialized trades or branches of trades. In considering these criticisms, it must be borne in mind that the compulsory schools have been in existence only since 1905, and that they are being adapted steadily closer and closer to the needs of industry, though they have yet much to attain. The drawings exhibited show that much very good work has been done in the schools.

In the winter term 1909-10, 32,320 pupils attended these compulsory schools, and in 1910-11 upward of 36,000. The costs, paid entirely by the city, were very slight, considering the great number attending. The total cost during the fiscal year 1910 was 1,089,910 marks (\$261,578.40), of which 811,910 marks (\$194,858.40) was for salaries.² These figures do not include cost of buildings, but only their maintenance. Thus, the annual cost, aside from first cost of buildings, was in 1909-10 \$8.09 per pupil. No tuition fees are charged in these compulsory schools. It must be remembered in considering this cost that assistant teachers are paid but 3 marks (72 cents) an hour, and other costs are low more or less in proportion.

More closely adapted to specific industrial needs in different trades is a large group of trade schools for apprentices. These schools are quite various in their nature and the sources from which they are supported. Eight of those existing in 1909-10 were supported by the city, the State, and by guilds, associations, and others interested.

¹ *Verwaltungsbericht des Magistrats zu Berlin, 1910. No. 9. Bericht über das städtische Fach- und Fortbildungsschulwesen, p. 2.*

² *Stadthaushaltsstat. 1910. Kap IV. abteil. 10, Pflichtfortbildungsschulen.*

Seven were supported as above, except that the State furnished no aid, while six were supported and controlled by corporations and guilds, receiving merely financial aid and cooperation from the city. Of these last, four were recognized as substitutes for the compulsory improvement school. Attendance on none of the others freed from the obligation to attend this school. Most of these schools have Sunday or evening classes, or both, while very few have day classes.

The largest of these apprentice trade schools is the Trade School for Book Printers (*Die Fachschule für Buchdrucker*), founded in 1875, which I visited. It is housed in a common-school building, where its classes meet two evenings a week, from 6 to 8. Its courses are of three years duration. Carefully planned by its directors to meet the special needs of their trade, and one of the few schools recognized by the city as a substitute for the compulsory improvement school, it is a type of the sort of school which many employers most prefer and a source of great pride and satisfaction to the association which founded and maintains it. This organization is the association of Berlin owners of book-printing establishments (*Verein Berliner Buchdruckereibesitzer*). It chooses the directors and supports the school, except for the rooms provided by the city. This association was once a guild, but owing to the objection of some of its members changed to the looser organization of an association (*Verein*).

The pupils are divided into two groups, the printers and the typesetters, who have separate classes. In the winter term of 1909-10 there were 1,456 pupils in the two departments. The instruction is practically all technical, there being no workshops except one printing shop. The classes for printers include German, arithmetic, physics, mechanics, drawing, and trade theory. The classes for typesetters are in German, Latin, French, English, Greek, arithmetic, trade theory, drawing, setting of Greek and mathematical sentences.¹ All of these courses are closely adapted to trade needs, the languages and mathematics, for example, being studied only in so far as will enable the apprentices to set type in these subjects. The masters are well satisfied with the results of the school, in improved work done by the apprentices.

Another group of trade schools are the higher trade schools with classes for both journeymen and apprentices. These include: the Hall of Industries (*Der Gewerbesaal*) and the Second Handworkers' School (*Die Zweite Handwerkerschule*), supported wholly by the city; the First Handworkers' School (*Die Erste Handwerkerschule*), and the Building Trades School (*Die Baugewerkschule*), supported by the city and State jointly; the City Higher Textile School (*Die Städtische Höhere Webeschule*), supported by city, State, guilds, associations, and interested individuals; and the Berlin Cabi-

¹ *Übersicht*, pp. 284, 285.

netmakers' School (Die Berliner Tischlerschule), supported by the city and by two guilds. Of these schools, two, the Hall of Industries and the Berlin Cabinetmakers' School, have, besides day classes for journeymen, seven branch Sunday and evening schools each throughout the city.

The Berlin Cabinetmakers' School, which I visited, is designed primarily for journeymen and masters, though it also accepts those apprentices who have worked two years at their trade. It offers day courses for 40 weeks a year and of two years' duration. The object is to correct specialized training and to fit its students to become technicians, designers, foremen, and superintendents. Its subjects are both theoretical and practical, as shown in the following standard course:¹

Subjects in the Berlin Cabinetmakers' School.

Subjects.	Hours per week.	
	First year.	Second year.
Practice in artistic cabinetmaking.....	20	16
Practice in machinery.....	4	4
Study of materials.....	4	.....
Chemistry.....	.....	2
Bookkeeping.....	2	.....
Trade arithmetic.....	2	.....
Calculation (of costs, etc.).....	.....	2
Drawing.....	16	24
Total hours per week.....	48	48

The school has very well-equipped shops and turns out work of a commercial character and very high grade. The design of furniture, of modest as well as of high cost, in Germany is on the whole of a high artistic grade. This result is largely due to the good work of such schools as this and the industrial art schools. The students make original designs, and execute many of them themselves. Others have been used in commercial work. The director is a master cabinetmaker and most of the teachers are experts in the trade. The school limits itself to furniture making, the First Handworkers' School specializing in interior architecture. The school also has departments for turning and sculpture.

In its Sunday and evening classes scattered throughout the city instruction is given evenings from 7 to 9, and on Sunday mornings. The instruction is almost all technical, drawing being easily first in importance, and there being only three subjects involving shop work, machine practice, turning, and modeling and sculpture in wood. The other subjects taught are ornament drawing, projective drawing, study of fastenings for and forms of wood, perspective and shadow

¹ *Übersicht*, pp. 227ff.

drawing, trade drawing, chemistry, trade arithmetic and calculation, and bookkeeping. The total number of students in day and evening departments in the winter, 1909-10, was 816. The cost for the year 1909¹ was 101,986 marks (\$24,476.64). The city bears almost all of this expense, the guilds contributing but little.

Another school visited, the City Higher Textile School, was established to meet the needs of the textile and clothing industries of Berlin. The instruction is technical and the school has many workshops, but it meets commercial needs as well as industrial. Many or most of its students, by making cloth at its looms and dyeing them in its dye shops, learn the technical aspects of fabrics that they may the better judge them and so handle them to better advantage in commercial dealings. There are both day and evening departments. The day department includes the following commercial courses to train in the handling of cloth: Design drawing, clothing manufacture, lace making, hand and machine embroidery, weaving and knitting, and dyeing.² Many of the students are in, or expect to enter, textile industries. The school meets the needs of those in, or looking forward to, the greatest variety of positions. The graduates of its courses secure better positions because of their study there.

These facts are shown especially in the evening dyeing classes, which draw apprentice dyers, technicians, university graduates in chemistry, and master dyers. The classes must naturally be divided into elementary and advanced. The results with all of these classes of students are seen in the attainment of special knowledge of the chemistry of dyeing and corresponding advancement. Practical master dyers, for example, who work ordinarily by rough rule-of-thumb methods, are enabled by this training to test their chemicals, and by this and other means to save materials.

There were, in the winter of 1909-10, 158 pupils in the day courses, 339 in those on evenings and Sundays. The total cost in 1909, exclusive of first cost of buildings, was 100,525 marks (\$24,126), of which 12,290 marks (\$2,949.60) was supplied by four interested guilds and associations, including the chamber of commerce.

The First Handworkers' School was also visited. This school is a day and evening school for apprentices and journeymen, whose classes are almost exclusively theoretical (technical). Its only workshop is a small one for book printers. The Second Handworkers' School is of similar type, but with more practical instruction in workshops. The Building Trades School has practically all theoretical instruction, while the Hall of Industries, a school especially for the machine trades, has much practical shopwork in addition to theoretic instruction. Most of the apprentice trade schools also have shops.

¹ The latest year of which I have data on costs.

² *Programm der Städtischen Höheren Webeschule, Berlin, 1911, pp. 5, 6.*

In such higher or lower trade schools as have workshops the apprentices and journeymen, many of whom receive but a one-sided and specialized training in their employer's shops, can learn somewhat of the operations as well as of the theoretic basis of other branches of their trade. The improvement school can also correct one-sided shop training to a slight extent, but only by the spoken and written word (chiefly the former) and not by actual doing of the operations studied.

Many specialized journeymen who as apprentices learned but a small range of operations in their employer's shop are enabled to change their branch of work and if necessary learn the new branch more quickly because of their school training. In some cases processes learned in a trade school may enable the future journeyman or master to do work which would otherwise have had to be sent out to a special shop. Thus press gilding, a branch of bookbinding, is taught practically in Berlin trade schools, but is a class of work undertaken by few but special shops. The trade-school training is sufficient to enable one who has grasped it thoroughly to carry on press gilding commercially, as incidental to bookbinding.

The quality of the work done in the higher trade schools is very evidently superior to that done by improvement school pupils. This is to be accounted for by the greater age of the pupils, the larger proportion of practical men who teach, and, in the more advanced classes, by the weeding process which has taken place at the end of the period of apprenticeship, for after this goal is reached no compulsion can force the journeyman to attend school unless he so desires, and only those continue in the trade school who intend to do their best and desire to advance. Many apprentices attend classes voluntarily in the apprentice trade schools, or evening departments of higher trade schools, in addition to their required attendance on improvement school. Such boys are in many cases the pick of the apprentices in earnestness and diligence. Some of the trade schools have no definite length of course, each boy or man advancing as fast as his capacity, application, and time permit.

A number of guilds require all the apprentices of their members to attend a trade school. The compulsory guilds¹ especially in many cases make such requirement, as they are better fitted to execute it than are the free guilds. This greater power is due to their control in such matters over the whole local trade in question. Such guild compulsion usually applies only after the completion of the apprentice's first year, for the masters do not consider that the average boy will benefit much from trade school until he is at least 15 years old and has had some experience in his trade. The compulsion applies

¹ In 1910 there were 26,994 members of compulsory guilds, with 8,837 apprentices; 22,907 members of free guilds, with 14,867 apprentices. *Geschäftsbericht der Handwerkskammer zu Berlin, 1909-10*, pp. 42-57

usually to a specific school and lasts ordinarily till the close of the apprenticeship; that is, for two or three years. Almost invariably it requires attendance evenings (and Sunday mornings sometimes); that is, during the apprentice's own time. Attendance on very few schools is accepted by the city in lieu of attendance on the compulsory improvement schools.¹ The consequence of these facts is that over 5,000² Berlin apprentices must attend two schools during the last two or three years of their apprenticeship.

The chamber of industry has established a number of both theoretical and practical master courses for its district of Berlin and environs. Twenty-four bookkeeping courses were held in 1909-10, of 30 hours total length each.³ A course was opened whenever 20 participants offered themselves; masters and journeymen and also wives and daughters of masters were admitted. Reviewing and practice bookkeeping courses were also given. Two courses undertook a general study of business, including such items as the law of handwork associations, struggles between employers and employees, etc. Fifteen courses in calculation took up cost accounting and the like. Twenty-two courses of very thorough scope and duration of 48 to 60 hours prepared journeymen for the master's examination. The subjects were bookkeeping, calculation, study of notes, exchange, and checks, study of industry, industrial insurance laws, associations, and a study of special trade and business matters (special for each trade).⁴ A course in the law of associations was also given under the chief union of German industrial associations. Seventeen practical master courses were also given, of from 12 to 96 hours duration each, and attended by 345 participants.⁵ The Berlin practical master courses differ from those in Hamburg in that they are more concerned to lead the way along trodden paths than in Hamburg, where the emphasis is all on the latest methods.

The Victoria Improvement School (*Die Viktoria Fortbildungsschule*) for girls and women, which I visited, is a private philanthropic school⁶ some 25 years old, rooms for which are furnished by the city. It includes industrial, commercial, pedagogical, and domestic science work. Some definite results of the school's industrial training have been noted. Domestic training enables the girls to start as servants with 25 instead of 12 marks (\$6 instead of \$2.88) a month and to obtain better future wage also. For dressmakers, milliners, and the like the school training enables the girls to secure pay, though small, from the start, instead of working for about two

¹ E. g., of those above mentioned, on none of the six higher schools, and only on the Trade School for Book Printers.

² 5,554 apprentices. *Übersicht, Supplementary table.*

³ Total cost, 3,673 marks (\$881.52); per participant, 5.43 marks (\$1.30). *Geschäftsbericht.*

⁴ 563 candidates passed the master's examination in 1909-10. *Ibid.*, pp. 170, 171.

⁵ Cost, 5,962 marks (\$1,428.67), total, or 17.1 marks (\$4.14) per capita.

⁶ One of two such schools in Berlin.

years without wage, as do almost all girls not specially trained. The advance in wage is also more rapid than for girls not school trained.

Several large firms in Berlin have their own apprentice schools. I visited what is probably the largest, that of the monster works of Siemens & Halske, manufacturers of electrical goods and machinery. The company had 225 apprentices in 1911, who were trained in a special shop and school, established in 1908, and recognized by the city as a substitute for the compulsory improvement schools. The instruction includes the same subjects as in these city schools, more specialized, however, to meet the needs of these apprentices and with some additional subjects. The curriculum is as follows:¹

Curriculum of apprentice school of the Siemens and Halske factory.

Subjects.	Hours per week.				
	First year.	Second year.	Third year.	Fourth year.	Total.
German.....	2	1	.....	.....	3
Arithmetic.....	1	1	.....	.....	2
Civics.....	.....	1	.....	.....	1
Mathematics.....	.....	1	1	.....	2
Calculation.....	1	.....	1	.....	2
Bookkeeping.....	.....	.....	1	.....	1
Drawing.....	.....	.....	1	.....	1
Technology.....	2	2	.....	2	6
Physics and chemistry.....	.....	1	1	2	4
Electricity.....	.....	.....	1	.....	1
.....	.....	.....	.....	2	2
Hours per week.....	6	7	8	6	27

After the usual trial period, the apprentices are regularly indentured to the firm for a period of four years. During their first year they work only in the apprentice shop, except when in the adjacent classrooms. Their tasks for the first year are in most cases merely exercises, through which they learn the skillful use of tools, principally hand tools. The amount of filing done is extraordinary, this type of work being regarded as an especially good training in steadiness and exactness and a suitable introduction to the trades prepared for. In a few cases, as with hammer heads, calipers, and the like, the products are used in the works. Throughout the first year the apprentices receive no pay.

At the close of the year each one is given a chance to see the different departments of the factory and to choose the one in which he wishes to work. Thereafter they work among the journeymen in that department of the factory at regular commercial work, still continuing their attendance on the school six or eight hours a week. During the last quarter year of their apprenticeship so many of them as desire return to the apprentice shop to draw and execute

¹ *Diplom Ingenieur R. von Voss: Zur Frage der Ausbildung von Lehrlingen für die Gross Industrie. "Werkstattstechnik". Heft 5, 1911. Verlag Julius Springer, Berlin.*

their journeyman's piece. The making of this piece is desired by the company, though not required. Most of the boys make it. The journeymen pieces on exhibition are a fine set, of which the firm is proud. In the journeyman's examination, the apprentices of Siemens Halske stand superior to all others in the same trades in Berlin.

The examination passed, or the apprenticeship merely ended, the journeyman or factory worker may go into any one of the four chief trades practiced in the factory—that of ironworker, turner, machinist, or electrician—and there specialize more narrowly than before.

The officials of the company with whom I talked expressed the greatest satisfaction with the apprentice school. Although yet so young, it has already shown fine results in raising the interest and skill of those it has trained. The company prefer their own to the city school, because their own instruction, given entirely by engineers and other industrial and commercial experts of the firm, is more practical and more closely adapted to the parallel-shop training, and to their industrial needs. A satisfactory proportion of the graduated apprentices, now journeymen, remain with the company. Further, the apprentices, considering their four-year term as a whole, and despite the cost of the apprentice school and shop and the unproductive first year of work, are found to be profitable to the company.

Looking over the Berlin industrial schools as a whole, we see that here, as elsewhere in Germany, industrial education does not shorten the period of apprenticeship, except in so far as (chiefly from the standpoint of the employer) the taking out of time for the school work may be said to do so. Generally speaking, the schools increase the interest of the pupils in their work, but this does not apply to all pupils, for in the compulsory-improvement schools many of the pupils are not there from choice and are lazy and indifferent. There is a special demand by employers for those who have studied in trade schools, wherever such study is optional, because of the greater skill and industrial intelligence thereby gained. This demand shows itself in the better positions and wages secured by those who continue in the trade schools more than the minimum period required.

Diligence in industrial school is practically necessary to pass the master's examination, which, as well as practical skill, requires theoretic knowledge which can be learned by most only in the schools.¹ This fact is a spur to some workers, but not to all, for the organization of modern industry, in Germany as well as in the United States, makes it hopeless for the majority of workmen to strive to become independent, or foremen, or technicians; and to be a master is only useful as a means by which to attain one of these stations. The

¹ Cf. curriculum of chamber of industry preparatory master's examination course, p. 104, above.

majority of German apprentices look forward to a lifetime as journeymen, or even as specialized factory workers who have not attained the legally defined journeyman's rank—i. e., passed the journeymen's examination.

The industrial schools have had a most salutary influence on the journeyman's examination in Berlin, which formerly was very poor.¹ The Germans set much store on these examinations, as furnishing definite tests of proficiency, theoretical and practical.

The school products are not sold, except in a few cases. Thus in the Berlin Cabinetmakers' School a student may sometimes sell his work, he in such case paying the school for the materials used. In most schools there are no considerable number of commercial products produced, and the schools usually prefer to keep the best work for exhibition. The view seems to be general that workshop instruction of a sort to be best given in schools and commercial production do not go easily hand in hand.

With minor exceptions, the Berlin industrial schools accept as students only those actually working as apprentices, journeymen, or otherwise, in the trade studied. There is thus no undue increase of the numbers entering single trades, for the number studying each trade is automatically adjusted to its needs. This is the case with practically all the schools I visited and studied in Germany. There is much unanimity on the question as to whether attendance on trade schools before the student has worked at the trade is desirable. Practical work in industry is always regarded as prerequisite to trade-school training received to good effect.

The expense of the industrial schools, though heavy, is regarded by the taxpayers as well worth while. The city provides the buildings in every case. The other expenses are shared as stated above. The expense per pupil is much greater in trade than in improvement schools, and, as is to be expected, higher in those trade schools having many shops and instructing advanced pupils than in others. The trade schools, higher and lower, enroll only about one-third the number of pupils that are in the compulsory improvement schools (11,754 to 31,466); while the proportion of apprentices in trade schools is also about one-third of those in the compulsory improvement schools (7,293 to 19,928).²

All classes of people are now well accustomed to the industrial schools and favor them. The masters formerly opposed them as a class, but now only a few individual masters do so. In no trade, as a whole, are the masters now opposed to the schools. As stated above, however, the masters prefer the trade to the improvement schools. They are not fully satisfied with the improvement schools, but

¹ Vorschulrat, Dr. Carl Michaelis.

² Übersicht, 1910, supplementary table.

not so dissatisfied as to be conducting a campaign for any change. The comparative attitudes toward the industrial schools of the industrial schoolmen and the employers indicates that these schools are the subject of chief interest to the schoolmen, but only one of a number of matters of importance to the masters.

Employers at first opposed compulsory attendance on improvement schools in the daytime. Now most of them have bowed to the inevitable and profess to like the new arrangement; but it is doubtful whether this professed satisfaction is always genuine. Employers are more or less favorable to the compulsory daytime attendance, according to the needs and exigencies of their trade, as has been described in the case of the Hamburg employers.¹

Masters, most of them guild members, are on the directorates of practically all of these schools. The guilds do not in Berlin, as in some other cities, supply models or materials for school shops, except in case of guild schools and a few others, but they maintain advisory relations with them, especially close in case of the trade schools.

¹ Cf. p. 94, ch. 2.

CHAPTER XI.

THE INDUSTRIAL SCHOOLS OF MUNICH.

Munich, the capital of the State of Bavaria (Bayern), is one of the most generally attractive cities of Germany. In 1905 its population was about 583,000. Brewing is its greatest industry, but many artistic handicrafts find here a home. Its chief industries include the manufacture of machinery, bronze, silver, and other metal ware, furniture, leather products and gloves, artificial flowers, printing and lithography, and glass staining. In Munich, as in south Germany generally, factories are less and handwork more prominent than in north Germany.

There were formerly guild schools in the city, but there now (1911) exists but one, that for painters. The former guild schools have been absorbed into the city school system with the approval of the guilds. The masters prefer the city schools, since they save them all expense except the slight aid which they give the city schools.

The Bavarian school law, under which the local ordinances of Munich have force, requires three years of attendance at Sunday school, immediately following the compulsory common school attendance, of all boys and girls not excused for adequate reason. The Sunday school provides a minimum of but two hours of instruction other than religious, and may be on Sunday or on week day. But the obligation to attend Sunday school may be fulfilled by attending an improvement school recognized by the district government as an adequate substitute, because it has not only special (trade) subjects, but enough of the general subjects characteristic of the Sunday school. The provisions of the National Industrial Law pertaining to compulsory improvement schools¹ are explicitly accepted and the compulsion of employers of boys and girls to allow them to attend such schools where local ordinance requires is reiterated.²

Munich has had an industrial continuation school for apprentices and an industrial improvement school for journeymen since 1875. These schools were for years but little specialized, while the apprentice school gave no trade instruction at the start. The present organization of the schools has taken its stamp from the original and resourceful personality of Dr. Georg Kerschensteiner, since 1895

¹ R. G. O., secs. 120, 139, 142. Cf. ch. 8, p. 81.

² Royal supreme law concerning school obligations, June 4, 1903; amended March 7, 1906. Text in Baar, pp. 19, 20.

superintendent of Munich schools. In 1900 Dr. Kerschensteiner won the prize of the Royal Academy of Sciences of Erfurt for the best essay on the subject of the most desirable education for boys between the common-school and the military-service ages (from the fourteenth to the twentieth year). This essay, *Staatsbürgerliche Erziehung der deutschen Jugend*, has been widely read, and in 1910 was translated into English under the title "Education for Citizenship."¹

In this book Dr. Kerschensteiner asks: "How must the modern constitutional State fulfill its functions?" The answer given is this: "By giving to everyone the most extensive education, one that insures (a) a knowledge of the functions of the State and (b) personal efficiency of the highest degree attainable."² His educational groundwork is stated elsewhere as follows:

The final goal of all public schools which are supported by public funds is the training of the pupils to be useful citizens. A useful citizen is one who contributes by his work, directly or indirectly, to the attainment by the State of its goal as a legal and cultural community. The first task of the school is the promotion, so far as may be, of the skill as well as joy in work of the pupil. The second task is the early accustoming of the pupil to placing his joy and skill in work in the service of his companions and fellow men as well as of his own. The third task is the connecting of the so-built-up readiness for service, consideration, and ethical devotion, with an insight into the purpose of the State, so far as such an insight can be developed in the pupils, considering their position and degree of maturity.³

The relation of means to end in Dr. Kerschensteiner's mind is shown best by an extract from an interview when he was lecturing in this country. He says:

The idea of industrial education is not the foundation of my work. The object of these schools is to train citizens. To train citizens it is necessary to enter into what is the daily life of 90 per cent of our people. Thus it becomes necessary to make the workshop the center of the school.⁴

Again, in his prize essay, he writes:

As a means of insuring personal efficiency, and so of enabling a pupil to take that part in society which his capacities warrant, the first place must be assigned to a training in trade efficiency. This is the condition sine qua non of all civic education.⁵

In this trade training, the foundation for the civic virtues is laid in "conscientiousness, diligence, perseverance, self-restraint, and devotion to a strenuous life."⁶

The year after coming into office as superintendent of schools, Dr. Kerschensteiner called together the presidents of guilds, representing the local industries, and proposed to them that the city found a system of trade schools. They voted against him, but he finally won

¹ Pressland, A. J., translator for the Commercial Club of Chicago, 1910.

² Ibid., pp. 21, 23.

³ Kerschensteiner, Dr. Georg. *Organization und Lehrpläne der obligatorischen Fach- und Fortbildungsschulen für Knaben in München, 1910.* Einleitung, pp. 8, 9.

⁴ N. Y. Times, Dec. 4, 1910.

⁵ Education for citizenship, p. 24.

them over. In 1900 he persuaded the city to reorganize its school system by the introduction of an extensive system of trade schools. There were factory schools in existence at the time, but as Dr. Kerschesteiner says, they were inadequate, for they shaped the boy "for the factory, not for the boy."¹ In this connection it may be well to quote Dr. Kerschesteiner's statement that "nowhere outside of Russia have I found such neglect of childhood as in England and America." To prevent such neglect in Munich, the industrial schools were established. Since the beginning of the school year 1906-7 they have been fully organized and in full operation.

There were in 1910-11 in Munich 55 trade improvement schools, including 2 commercial schools, whose attendance is compulsory for apprentices.² Ten compulsory district continuation schools meet the needs of the unskilled boy workers and of those in trades having too few apprentices to allow a separate school. One compulsory "help-school" aids weak-minded pupils. Twenty-three of the apprentice trade improvement schools have voluntary courses for masters and journeymen in connection with them, and there are other independent courses and schools for the same class of workers. Compulsory improvement schools are also provided for girls.

The boys' improvement schools and the journeyman and master courses are housed in seven large buildings erected for the purpose in different parts of the city.³ Some of the improvement school classes overflow into the common school buildings. The trade improvement schools are grouped in buildings according to related trades, though some trades are represented by several schools in different buildings. The school authorities profess themselves willing to organize a trade school for each trade having 25 or more apprentices. The most important trades have four schools, most have only one, while a few petty trades have no separate school, and their apprentices attend a school in common. The trade schools, with their groupings in the several buildings, are as follows:⁴ I. Liebherrstrasse Industrial School:⁵ (1) Turners, brush makers, and related industries; (2) druggists, and dealers in dye and other materials; (3) leather dressers and hand shoemakers; (4) wood and ivory carvers; (5) chimney sweeps; (6) coachmen; (7) saddlers and trunk makers; (8) coopers; (9) ironworkers (building and fine work); (10) smiths; (11) joiners and cabinetmakers; (12) shoemakers; (13) tapestrers, decorators, lace makers; (14) oven makers and setters; (15) watchmakers; (16) wagon builders. II. Prankhstrasse School: (17) Fine machinists, opticians, and instrument makers; (18) machine builders; (19) mechan-

¹ N. Y. Tribune, Dec. 4, 1910.

² *Fünfter Jahresbericht der männlichen Fortbildungs- und Gewerbeschulen Münchens.* 1910-11.

³ Value of land, buildings, and equipment, 1910: 4,824,009.85 marks (\$1,167,783.96). *Jahresbericht*, 1910-11,

p. 19.

⁴ *Jahresbericht*, 1910-11, pp. 5-8.

⁵ The school that I visited.

ics, electricians, and gunmakers; (20) ironworkers (second department); (21) joiners (second department); (22) tinnern, installers, fitters' helpers, and metal stampers; (23) bookbinders; (24) book printers; (25) lithographers and stone printers; (26) photographers and chemists; (27) metal casters, brass founders, and chasers; (28) tin casters. III. Elisabethplatz School: (29) Coppersmiths; (30) machine builders (second department); (31) mechanics, etc. (same as 19, second department); (32) ironworkers (third department); (33) tailors; (34) joiners (third department). IV. Gotzingerplatz School: (35) Machine builders (third department); (36) mechanics, etc. (third department); (37) ironworkers (fourth department); (38) joiners (fourth department). V. Single scattered schools: (39) Bath assistants, hairdressers, and wigmakers; (40 and 41) hotel keepers (2 departments); (42) gardeners; (45) confectioners and pastry cooks; (46) butchers (at the city slaughterhouse); (47) musicians and music pupils. VI. Louisenstrasse School: Journeymen's and master's courses chiefly; also (48) masons, stone masons, and plasterers; (49) dentists; (50) jewelers, gold and silver workers; (51) stuccoworkers and sculptors. VII. Westenriederstrasse School: Journeymen's and masters' courses chiefly; also (52) decorative painters, lacquerers, gilders, and cask painters; (53) glaziers, glass, enamel, and porcelain painters. VIII. The Commercial Improvement School, embracing schools for (54) those in commerce; (55) clerks and Government officials.

All boys in Bavaria may leave the common school when they are 14 years old and girls when 13, unless they have completed it before. About three-fifths in Munich complete the course without repeating a year. They are then usually 14 or 15 years old. Of those who do not go to a higher education, about four-fifths enter industry or commerce as apprentices or clerks, and one-fifth become unskilled or juvenile workers. Every boy in Munich who need no longer attend the common school must attend a trade improvement (or continuation) school for at least three years immediately following the common school attendance, and generally, if an apprentice, throughout his apprenticeship. Under the National Industrial Law this obligation can not last beyond the eighteenth year.¹ Girls must attend improvement school for three years or at least until they are 16 years old.² Compulsory attendance for girls has been found as necessary as for boys, to prevent employers wishing cheap labor from employing girls to the displacement of boys.³ Boys unusually well prepared may, on evidence of their proficiency, be advanced on entering a trade school a term, a year, or even two years. Those who have

¹ R. G. O., sec. 120.

² Karschensteiner: *Fach u. Fortbildungsschulen Münchens*, pp. 5, 11; also: *Satzungen für die Fortbildungsschulen der K. Haupt- und Residenzstadt München*, 1906, sec. 20-21, p. 8.

³ *Satzungen*, secs. 20, 2, 3. p. 8.

satisfied the nominal obligation to attendance, but who have not reached the proper proficiency, may be required to attend longer, but not longer than the completion of their eighteenth year.¹

The hours of instruction in the trade (including the commercial) improvement schools range from 7 to 11 per week, in most cases 8 to 10 hours, varying between the different schools. By municipal ordinance, none of the compulsory instruction is given after 7 p. m., though some voluntary classes even for apprentices are held later. There are almost no classes on Sunday. Most of the schools have classes from 4 to 6 hours consecutively, usually in the afternoon and early evening, though sometimes in the morning. The apprentices thus attend either about 2 half days or about 1 full day. The abolition from among the compulsory classes of late evening instruction improves the quality of the work done by the pupils. The school year is about 10 months.

The curriculum and general plan of the trade (improvement) school for fine mechanics is typical of these schools.² In this school opticians' and instrument makers' apprentices study 9 to 9½ hours 1 day of each week, closing at 7, for 4 years (in most of the schools for but 3 years). The subjects taught are as follows:³

Curriculum of the trade improvement school for fine mechanics.

Subjects.	Hours of instruction.			
	First year.	Second year.	Third year.	Fourth year.
Religion.....	1	1	.....	.....
Business composition and reading.....	1	1	1	.....
Industrial arithmetic and bookkeeping.....	1	1	1	1
Ethics and civics.....	1	1	1	.....
Physics.....	1½	1½	2	2
Trade drawing.....	2	2	2	2
Practical instruction with study of materials and processes.....	2	2	2	4
Hours per week.....	9½	9½	9	9

Religious instruction imparted by a priest or teacher, Roman Catholic or Protestant, appointed by the religious authorities, is given in all the trade improvement schools. The business composition aims to give familiarity with business forms and practice in writing business letters. The reading is so selected as to have an ethical value and tempt the pupils to acquire the taste for good reading. The industrial arithmetic and bookkeeping is concerned with practical problems of computation of solids, keeping personal and business accounts, making business estimates and the like. The

¹ Satzungen, secs. 20, 2, 3. p. 8.

² A complete account of the curricula of several other of the Munich trade improvement schools can be found in Bulletin No. 14 Nat. Soc. Promot. Indus. Educ.: "The trade continuation schools of Munich."

³ Jahresbericht, 1910-11, pp. 120, 121.

ethics and civics (*Lebens-und bürgerkunde*) are designed to help the student to adjust himself to his environment, and include studies of hygiene, ethics, apprenticeship and industrial relations, history and present conditions of industry, the rise of mechanics, the town, district, State, and nation, and the rights and duties of the citizen relative to each. The physics is elementary and practical. The trade drawing is practical and receives much attention. Dr. Kerscheneister says of this trade school as of the others: "Nothing is drawn that is not made in the workshop, and nothing made there that is not drawn."¹

The practical instruction aims to make the pupils acquainted by observation and practice with the chief materials, tools, processes, and products of his trade. According to Dr. Kerscheneister: "We intend that the boy shall understand, at least once, every important process or method in his trade, and shall perform it himself, either in miniature, or, whenever possible, in real materials."² In the Fine Mechanics' Trade School the different kinds of iron and steel, tempering, defects, measurements, geometrical forms and their production, hand and machine tools, other metals, filing, turning, and other growingly complex measurements and processes are studied and practiced.

Other German industrial schools than those in Munich have workshops, and the presence of these is practically universal in higher trade schools, as those for journeymen or masters. Many other improvement schools also have workshops. But nowhere, as in Munich, do workshops in the improvement schools play so large a part throughout a comprehensive system as in the work of those schools. In most other German improvement school systems workshops are incidental. Here they are, as they are intended to be, the center and focusing point of the whole instruction.³ In number of workshops, in their general application to all the industrial trade schools, and in the time given to instruction in them also, the Munich industrial schools are regarded universally as the leading example of workshops in the improvement schools. Wherever in conversation the question as to the expediency of such shops was raised, the names of Kerscheneister and Munich were quick to appear as the leading theoretical exponent and the practical example, respectively, of the system. I shall return later to the discussion of these workshops, the crux of the Munich industrial school system.

The practical classes average 12 to 15 pupils per teacher;⁴ the theoretical classes, 30 to 40. The trade classes were formerly larger,

¹ Kerscheneister: *Fach- und Fortbildungsschulen*, p. 13. Teachers in the trade schools say this maxim is not carried out literally.

² New York Tribune, Dec. 4, 1910.

³ Kerscheneister, G. "The organization of the continuation school in Munich," p. 19. In three lectures, etc.

⁴ With extremes of perhaps 10 and 24.

but were found to be unsuccessful. Where a school has more than one class of each grade, the better and the poorer pupils are placed in separate classes. Examinations, practical and theoretical, are held at the close of the courses, and certificates given to those who pass them.

The teachers of the theoretical subjects are almost all common school teachers; those of the practical (workshop) subjects are chiefly masters and journeymen of the respective trades. The teachers in the trade improvement schools (excluding the commercial schools) are classed as follows (June, 1911): Head teachers, 106; chief industrial teachers, 40; common school teachers, 103; teachers from industrial positions, 88; those from other positions, 29. Thus 88 out of 366 teachers in these schools are practical industrial workers (masters and journeymen).¹ The practical men—masters and journeymen—who teach trades are required to attend for two years a class in teaching principles and methods, taught by a city school inspector. Some ² teachers of trade subjects (such as trade drawing, study of materials, and industry and workshop instruction) are common school teachers who have learned somewhat of the technic of the trades in commercial shops. The masters are satisfied with all but these teachers but do not believe that they can give first-rate practical workshop and other trade instruction. The trade teachers are paid 96 marks (\$23.04) for each hour a week taught through the year. The other teachers receive specified amounts, from \$720 to \$1,300, with retiring pensions for long service.³

The relation of the Munich trade schools to the employers and guilds is peculiarly close. The chambers of commerce and industry nominate such guild members as are eligible to the school directorates, and each directorate must include at least one member (and may have as many as three) of the group of trades served by the school. The nominated body of eligibles, which includes most of the trade leaders in the city, may inspect the schools, advise as to instruction, propose trade teachers, take part in the oral and inspect the written examinations. The employers in each trade are also consulted as to the hours for the compulsory and other instruction most satisfactory to them. In return the employers are expected to and do aid the schools by advice, gift, or loan of materials, models, and tools, and by watching over the regular attendance of their apprentices or other boys and girls employed.⁴ At first the guilds and individual masters aided the schools by supplying tools, materials, and models, and they still do so somewhat, but in the main they now find it more convenient to contribute instead small sums

¹ Compiled from figures in *Jahresbericht*, 1910-11, pp. 408-419.

² "A few only," said a teacher; "A growing number," said the chamber of industry.

³ *Sadler*, ch. 19.

⁴ *Satzungen*, Dec. 17, p. 7.

through their guilds. Masters who belong to no guild must contribute a like amount directly.

The 10 district continuation schools are primarily for unskilled workers, though a few apprentices of scattering small trades attend also. They require attendance for eight hours a week for two years. Their several curricula differ but slightly, and are represented by that of the Plinganstrasse school:¹

Curriculum of the Plinganstrasse district school.

Subjects.	Hours of instruction.	
	First year.	Second year.
Religion.....	1	1
Composition and reading.....	1½	1½
Arithmetic ¹	1½	1½
Ethics and civics.....	1	1
Gymnastics.....	1	1
Manual training and drawing.....	2	2
Hours per week.....	8	8

¹ Alternately 1 and 2 hours.

The arithmetic is designed to aid the pupil to keep his accounts and to understand simple dealings with banks, with the national insurance funds, and the like. The ethics and civics is much the same as for apprentices, but with no special application to any trade. The manual training and drawing aim to arouse the interest of the boys in things mechanical, that some may seek to enter the trades, and to prepare them the better for entrance into the trades and trade schools.²

The higher trade schools include day trade schools, and courses for journeymen and masters. Some of these occupy buildings devoted almost exclusively to them, while 23 are connected with improvement schools of the same trade. Attendance on all of these schools is purely voluntary. There is a day trade school for woodworking and interior furnishing, with 55 students, and a day trade school for artistic bookbinding with 25 students (1910-11). In each of the two large buildings given over chiefly to higher trade courses, there are both Sunday and evening schools for journeymen and masters engaged in industry, and day courses of 36 to 42 hours total duration for the same classes of workers when out of work. Two public halls give opportunity for drawing practice and for instruction for those in the building trades, one in free-hand and the other in trade drawing. All of these courses are arranged to suit the convenience

¹ Jahresbericht, 1910-11, p. 391.

² Kerschenshteiner: *Fach- und Fortbildungsschulen München*, pp. 329-331.

of those to be benefited and thus are adapted to special trade exigencies. Short courses are quickly arranged, if need be, when any considerable unemployment causes temporary demand for them. Apprentices, when their period of compulsory attendance is over, liking the new freedom, usually do not attend any school for two or three years. Many move to other States. But a considerable proportion of journeymen, when they reach the age of 20 to 22, return to the public trade schools for further and voluntary work. Journeymen and masters up to 50 years of age are found in these schools.

Education for girls has not received much attention as yet in Munich. Improvement schools for girls require but three hours a week attendance, which period will be doubled from 1912 on. There is not large need as yet for industrial schools for women in Munich. They go into but few industries—the women's industries, as house-keeping and domestic service, dress and hat making, photography, etc., besides commercial work. Girls are free to attend the boys' trade schools, if they wish. Domestic science is the chief study in the compulsory improvement schools. A voluntary improvement school with general, commercial, and household subjects; a voluntary eighth class of the common school; and two private schools subsidized by the city—the Riemerschmid Commercial School and the Woman's Work School—also minister to the wants of girls and women.

There were in June, 1910-11,¹ in the 55 trade improvement schools, 9,330 pupils; in the 127 journeymen's classes, 2,733, of whom 450 were in day trade schools and courses; in the 10 district continuation schools, 1,018; in the compulsory improvement schools for girls, about 7,500. The total cost of all these schools, except those for girls, was in 1910-11 1,169,781.47 marks (\$280,746.55). This included 120,000 marks (\$28,800) for new buildings, repairs, and rent, but takes no account of the original cost, interest, or sinking fund, on a property in land, buildings, and furnishings valued at 4,824,099.85 marks (\$1,157,783.96). The cost in 1910-11, exclusive of existing permanent plant, for all pupils, except girls, was 98.42 marks (\$21.46) per pupil.² The pupils in the improvement schools pay no regular tuition fees, and but trifling fees for the use of materials, etc. Those in the higher trade schools pay small fees, as 50 cents to \$1 a month. The city common schools cost 93 marks (\$22.32) per pupil,³ which shows the improvement schools to be not very expensive in comparison. The taxpayers, however, sometimes grumble at these heavy expenses, but the city administration is liberal with the schools notwithstanding.

¹ *Yahresbericht*, 1910-11.

² Computed from figures in *Yahresbericht*, 1910-11; especially pp. 17-19.

³ *Kerschensolner*: *The Continuation School in Munich*, in *Three Lectures*, p. 24.

The results of the trade improvement schools are evident in better work done by the apprentices, especially shown by better journeymen's examinations.¹ In 1907, the guilds or associations of master printers, tailors, shoemakers, and tapestrers declared that the journeymen's examinations were better on account of the improvement schools.² The results on specialization are favorable, enabling a specialized apprentice as a journeyman to learn another branch of his trade more quickly than he could do without the school training.³

The school attendance has been bettered by the change in the type of improvement schools, as has also the attention and zeal of the pupils in the schools. The employers differ as to whether this improvement extends also to the shops where the pupils work. The pupils quite generally like the schools, often better than the shops. The technical and especially the practical training (workshop) attracts them most. A number of masters or guilds claim to see an improvement in the conduct of the boys attributable to the schools.⁴

The masters regard these schools as equally efficient as the former guild schools.⁵ In general, with qualifications to be noted later, the masters are satisfied with the new industrial schools. One patent and avowed reason for the approval of the masters is that the public schools save them money formerly spent on guild schools. Most individual masters and the majority in most trades are fairly well satisfied with or at least tolerate the compulsory day instruction. Some trades as a whole, as the smiths and the wrought-iron workers,⁶ are actively opposed to this system because it disturbs their work greatly, the journeymen in these trades working always with the immediate aid of apprentices. The bakers, on the other hand, are actively for the day attendance, since their work is at night.⁷ More and more, as also in other cities in Germany, employers are coming not only to tolerate but to actively call for the use of working hours for compulsory instruction. Thus, for example, the guilds of copper-smiths, joiners, and typesetters declare the day attendance to be superior to the evening, and state or imply that it is worth whatever extra cost it involves to the employer.⁸ The employers in some cases pay the same wages to their apprentices or unskilled workers as if part of their working day were not given to school work. In most cases, however, the boy must accept a lower wage on this account.

Of the school workshops, the approval of the masters is much less unanimous and is generally more qualified when given. Of the opinions of guilds and other employers' associations, published by

¹ Handwerkskammer, Munich.

² *Bericht über die Bewährung der Neugestaltung der gewerblichen Fortbildungsschulen Münchens, 1907, pp. 1-8.*

³ Handwerkskammer, München.

⁴ *Bericht über Bewährung.*

⁵ Schlossers.

⁶ *Bericht über Bewährung, pp. 2, 3.*

the school board in 1907, a majority expressed approval of the technical training, but few specifically of the practical (workshop) training. Those guilds specifically approving the workshop instruction were those of the lithographers and stone printers, tin casters, druggists (of all Bavaria), wrought-iron workers, and butchers. Those specifically opposed to the workshop instruction were the guilds of fine mechanics and opticians, joiners, sculptors, and stucco workers,¹ and potters.² The most pronounced opposition came from the association of fine mechanical and optical businesses in Munich. This association declared that the apprentice thinks the school instruction only is of much value; that the practical instruction is not comprehensive enough to be of much value; that the drawing is the only technical training given of much value; that the school has not the equipment to teach specialized machine work, as gear cutting; that first-rate practical teachers can not be secured by the schools at the low salaries they pay; and that, finally, the practical work of the school can never be equivalent to that of a commercial shop.³

The eyes of all Germany have been on the Munich schools and their workshops, and many men in industrial schools and in industry in other parts of Germany have well-developed opinions on the Munich schools and have watched the results of their shops. The impression that has gone out does not seem, on the whole, to be favorable to the school shops. In the next chapter I shall discuss the general question of shops in the improvement schools; suffice it here to note some typical opinions on the Munich experiment.⁴ The Munich improvement schools are claimed to work in opposition, in many cases, to the training given by the masters, and to be regarded by the masters as not practical. The teachers are often primarily theoretical, and do not know thoroughly what they try to teach; and even when practical men, the school comes so to mold them that their teaching develops a theoretical tinge. The most extreme statement met was "the Munich experiment has failed, though some Munich masters approve of it."⁵

On the whole, the masters in Munich now approve of workshops in the schools, but only as aids to the theoretical instruction. As such aids they regard the school workshops as of proved value when in the hands of masters of their crafts.⁶ They do not regard these shops as practicable substitutes for training in commercial shops, and do not desire them to become such. Thus the positive declara-

¹ The representativeness of this view questioned by the school authorities.

² *Bericht über Bewährung.*

³ *Ibid.*, pp. 8, 9.

⁴ Also without discussing here any bias which the makers of these criticisms may have.

⁵ All of the views expressed in this paragraph are from chambers of industry or masters and guild members.

⁶ *Handwerkskammer, München.*

tion of the bookbinders' guild: "The school can never serve as a substitute for the workshop training."¹ They are opposed to the introduction of the so-called teaching workshops (*Lehrwerkstätten*), where a boy just out of common school is to learn his trade entirely, with no apprenticeship whatever.²

The school authorities, and especially Dr. Kerschensteiner, take these school workshops much more seriously. They may have no idea of altogether displacing apprenticeship, but they certainly aim not only to aid the theoretical instruction but to impart positive practical instruction also. The fact that in some of the schools they go systematically over those elementary operations of the trade which would be taught and practiced in all shops³ indicates a more or less conscious endeavor to do what would probably be disclaimed were it put boldly: To teach the whole trade, and thus relieve the master of all burden of teaching his apprentice. This aim has certainly taken possession of one school official whom I questioned and represents his view of the aim and function of the schools. One of the greatest difficulties to be faced, were such a tendency to continue, and the school shops to be efficient enough, would be the acceptance of this condition by the masters, and the gradual shifting to public shoulders of the teaching burden formerly borne by the employer. To reshift this burden back again, were that desired later, might prove much more difficult than its assumption.

To the school authorities—which means primarily to Dr. Kerschensteiner—the practical or workshop instruction is the base of the whole superstructure.⁴ In it the interest of the pupils is to center (as it has largely done), and from it the theoretical instruction is to take meaning and shape. It is to be chief, though the masters would have it subordinate. And why this great emphasis on the school workshops? The best reply is in Dr. Kerschensteiner's words:

The essential reason why the continuation school should not become a purely theoretical school is that its limitation to theoretical instruction would form an almost insuperable barrier to transforming our schools into educational institutions for community life.⁵

Here we see again Dr. Kerschensteiner's philosophy of education. His basic purpose is not industrial, but ethical and civic. It is no part of my present purpose to evaluate these schools from the ethical and civic standpoint, supremely important though that be. The theory looks sound, and the prospects of its successful working out seem good. But in the process is there not great danger that, as in our

¹ Bericht über Bewährung, p. 1.

² Handwerkskammer, München.

³ Thus in the school described above, for fine mechanics.

⁴ Bericht über Bewährung, p. 7. Kerschensteiner: *The Continuation School in Munich*. In *Three Lectures*, p. 19.

⁵ Kerschensteiner: *Continuation School*, p. 23.

manual-training movement, the industrial results may become but slight and the whole movement be or become dominantly cultural?

Of the journeymen and master courses and schools I need only say that they are quite satisfactory. Workshops in such schools are not subject to some of the difficulties that assail them in the improvement schools. Like more or less similar schools in the United States, these higher schools are generally recognized as efficient in their training of skilled journeymen, technicians, designers, foremen, and masters.

Finally, the trade-improvement schools of Munich must be looked upon as an experiment not long enough established to have final judgment passed upon them. Their future development and results on industry will be of the greatest interest to those desirous of promoting industrial education and efficiency the world over.

CHAPTER XII.

RESULTS OF THE INDUSTRIAL SCHOOLS.

Having shown the organization and the workings of the industrial-school systems in three important centers, I shall turn now to the wider field embraced by all the cities in which I studied the industrial-education situation, and present certain results which have come from the schools in these cities, the attitude of the industrial employers to them, and certain problems which have arisen as to their most efficient working. The data contained in this chapter are derived from my inquiries of chambers of industry, school directors and teachers, and others. The statements as to the attitudes of employing masters are almost always made on the authority of the local chamber of industry, the body of all others best fitted by intimate knowledge of and relations to the masters of the district to represent their views. What, then, have been the results, up to the present time, of this extensive plant and patient effort? Can we speak with assurance of these schools as institutions which have accomplished, in measure, that for which they were established?

In every city visited, and with regard to practically every school or set of schools of which the inquiry was made, the masters held that the industrial schools resulted in the training of better apprentices and more highly skilled workmen. These good results were not forthcoming in equal degree from all the schools. In general, the masters regard the results of the trade schools as superior to those of the improvement schools; and the results of the more specialized improvement schools, called sometimes trade-improvement schools, as superior to those more general in nature. The higher trade schools, again, are almost always spoken of with more enthusiasm and as showing more marked results in increased skill than the lower schools. This fact can be attributed to the greater age, maturity, and acquaintance with industry of their pupils, almost all of whom attend voluntarily, and thus only when they really desire to learn. The well-equipped shops in such schools may also explain their results in part.

In many of the improvement schools it was stated that the schools stimulate the interest of the pupils in their work, but in others the qualification was made that this was true not of all the pupils, but merely of the better sort. Some of the pupils attend merely because they must and take but little interest in the school work. So far as the results on the interest of the pupils is concerned school workshops seem to be of advantage, though the added interest engendered by

them in the school work may or may not in each case extend to the pupil's own shop. To the question if there was a special demand for pupils of the industrial schools the usual reply was: "Yes, where attendance is optional, but not where all the apprentices must attend." In a few cases it was stated that higher wages resulted from attendance on improvement schools; invariably this was the case with the higher trade schools. In Dresden an official of the Saxon ministry of the interior stated that the masters could turn out better work because of the training received in the schools by their workers.

The journeymen's and masters' examinations are looked to by the masters and schoolmen as concrete evidences of proficiency. They give definiteness to the results of the industrial schools. In almost all the cities visited it was stated that the industrial schools had improved the journeyman's examination, and in a few cities that they had also resulted in better master's examinations. In a number of cases the improvement in the journeyman's examination was said to be due directly to the improvement school. I was told in several cities that the examinations were better in the city than in the country. Part of this difference is due doubtless to the better industrial schools possessed by the cities.

The industrial schools, as a whole, have a salutary influence on specialization. The improvement schools, whose results in this respect do not compare with those of the trade schools, influence specialization chiefly by broadening the industrial outlook of the apprentices, giving them a more or less general understanding of the related branches of their trade. The trade schools, especially the higher ones, can and do as a rule teach enough of the practical as well as of the theoretical aspects of a whole trade or large branch to add greatly to the worker's industrial resource. As a result of the trade-school training, many workers are able, when necessity prompts, to learn more quickly than otherwise a related branch of their trade.

The general attitude of the masters toward the industrial schools is, in every case of which I learned, favorable. The employers usually prefer trade (improvement or other) schools to the more general types of improvement schools. In most cities the masters prefer the city industrial to the guild schools. Many of these now no longer exist, having been taken over by the city or died a natural death when the city schools became compulsory. The masters are saved money by the city schools, which they formerly spent on the guild schools, which pleases them. In most cases they regard the city schools as equally efficient to the guild schools or nearly so. In Coblenz the masters have no special preference for the guild schools, if only they have control enough to insure that the instruction be practical; that is, adapted to the needs of industry. In two Saxon cities, however, Dresden and Chemnitz, the masters prefer the guild

to the city schools. In Saxony the guild schools are numerous and important.

Attendance on compulsory improvement schools is being more and more shifted to the daylight hours. The superior advantage of the daytime to the evening for courses of this sort is intensified by the compulsory nature of the attendance. If all those between certain ages and engaged in industry and commerce are required to attend evening classes, as was the case throughout much of Germany till recently, certainly many will be present in the schools whose interest and endurance does not permit them to benefit from the extra tasks at the close of the day. Such has been German experience, and consequently we find compulsory improvement school classes shifted ever more and more into the circle of the hours of the working day, however closely guarded by employers. The reader who sees statements concerning some German schools, that they have no classes in the evening, should realize that by this the Germans understand not later than 8 p. m.

The attitude of the masters toward compulsory day attendance of apprentices and other youthful workers on improvement schools varies greatly between the cities visited, and somewhat between the several trades. In the earlier days of compulsion the initiative in securing legislation was usually taken by others than the masters, and the masters were in most cases opposed. In the last few years, since the experiment has proved useful to industry in many parts of Germany, the masters have in some cases even taken the initiative in seeking to establish compulsory attendance.¹ The attitudes vary from strong opposition, as in Dresden and Chemnitz, through the several stages of opposition, as in Barmen, Elberfeld, and Dortmund, to toleration, as in Berlin, Frankfort on Main, and Dusseldorf; to approval, as in Magdeburg, Leipzig, Munich, Coblenz, and Duisburg; to special desire for compulsory attendance, as in Plauen, Essen,² and Aachen (Aix la Chapelle). It must not be understood that all masters or even most masters in all trades agree in their attitude; the above statements indicate merely the general reaction to compulsory attendance. In Hamburg, Berlin, Munich, Barmen, and Dortmund it was specifically stated that the masters were not in entire agreement among themselves as to their attitude, and that in Elberfeld and Dusseldorf there was no unanimity at all on the matter. I need not here repeat what was stated in another chapter concerning the difference of attitude of masters in different trades in Hamburg,³ which

¹ As in Plauen, in Saxony, and Essen. The handwork masters of Essen petitioned the mayor, July 18, 1910, asking that after Apr. 1, 1911, the city authorities extend the (improvement) school compulsion to all the apprentices of those trades whose guilds request such action for them. *Denkschrift des Essener Handwerks*, 1910, p. 13.

² The Essen masters oppose that provision of the local ordinance which requires the employers to pay their boys' tuition in the compulsory school. Ordinarily, though, they shift this to their apprentices.

³ Cf. pp. 94-96, ch. 2.

applies in greater or less degree throughout Germany, except to say that trades which receive the greatest benefit from industrial schools are among those which are most favorable to compulsory attendance, except where the disturbance to the shop work is greatest. In such case, as in some highly skilled machine industries, the great disturbance to the work often outweighs, in the mind of the employer, the admittedly great benefit of the technical training. The disturbance of work is generally greatest in the small shops, and for them, as for the larger shops, is generally lessened by allowing them to send the apprentices at different times. In general the tendency is toward the change of opposition into toleration, and toleration into approval, as the masters observe the results of the school training on their apprentices.

In Duisburg, Crefeld, and Aachen the voluntary industrial improvement school, which had preceded the present compulsory school, resulted in better average work than the present school, because most of those who attended the voluntary school were serious and earnest. The masters in these cities prefer the present schools notwithstanding, for they benefit a larger number of boys.¹

More and more also the masters are coming to prefer day to evening instruction. The tendency in this direction is not as yet marked, but it is undoubted. In Plauen, for example, the masters sought to have the improvement-school instruction given in the daytime, chiefly because they regarded such instruction as much more efficient than that given in the evening. The Leipzig masters prefer the morning to the afternoon hours, if there is to be day instruction at all, for in the morning the boys are fresher and learn better. In Munich and in Frankfort on the Main much of the instruction in the industrial improvement school is given in the morning, to the satisfaction of the masters. In the Frankfort Industrial School,² in the decade 1890-1900, before compulsory attendance was initiated, the director tried experiments in the hours of instruction. He offered courses first from 8 to 9 p. m., then alternative courses from 7 to 9, then from 5 to 7, then morning courses. Many of the employers, as these courses were successively offered, sent their apprentices to the earlier courses.³

In general, the attitude of employers to compulsory attendance of unskilled workers is much less favorable than in the case of apprentices, chiefly because what they learn is more general than industrial in nature, and their industries neither feel the need of nor can greatly benefit by this training. Nowhere did I find this spirit so marked

¹ Though the voluntary industrial improvement school in Aachen had at times an attendance of 4,000 to 7,000.

² A voluntary school for apprentices and journeymen, attendance on which, to those boys who meet special qualifications, frees them from the necessity of attending the industrial improvement school.

³ Herr Direktor Back, of Frankfort Gewerbeschule.

as in the Ruhr Valley, tributary to the lower Rhine, and the seat of great coal mines, iron smelters, and steel mills. Here the proportion of workers classed as unskilled (*ungelernte*) is very high; in the Krupp works, for example, 75 per cent or higher.¹ In Essen compulsory attendance has only been initiated since 1910, and there the Krupp firm, though approving of the compulsion for their apprentices, is very doubtful whether it will be worth what it costs the firm for the unskilled workers. They are, it was declared, many of them dull, and not a picked lot like the apprentices. In Duisburg the factory owners are opposed to compulsory attendance of their unskilled workers, and the same attitude is characteristic of the coal, iron and steel, and similar industries throughout the region.

The problem of securing suitable teachers for the industrial schools is one of the most difficult with which the school authorities have to deal and is not fully solved as yet. This problem exists both in the improvement and in the higher trade schools, though the latter schools are nearer to its solution than the improvement schools. Theoretical subjects, such as arithmetic, bookkeeping, physics, and the general studies of industry have been taught almost universally by common-school teachers in the improvement schools. The masters are generally fairly well satisfied to have this class of teachers for the theoretical or book subjects. That they have in most cases no improvement to offer to the use of professional teachers for theoretical subjects is indicated by the fact that in guild schools in Dresden, where the masters have an entirely free hand to pick the teachers which suit them best, all the theoretical instruction is given by common-school teachers of the city. In Magdeburg and Chemnitz, however, the masters wish to have practical men, preferably masters working at their trades, impart the theoretical instruction.

Quite different is the problem for teachers for practical or definitely trade subjects, such as trade drawing, study of materials, and all workshop instruction. Skilled practical artisans, when otherwise qualified, have generally been sought to teach these subjects. Inability to secure enough such men has required the turning of common-school and other professional teachers to these branches also. To do this they prepare themselves in commercial workshops or in industrial schools (usually higher trade schools). Their teaching, however, of the distinctly trade subjects has been on the whole quite unsatisfactory to the masters. They stated that these teachers did not understand fully what they tried to teach, and that their teaching often ran in opposition to the teaching in the employers' shops. As a result of such criticism by the employers, the tendency is quite general to secure practical men for the practical subjects wherever possible. The present status may be realized by the statement that

¹ An engineer of the company.

of 14 of the cities visited, the teachers of trade or practical subjects were but few of them practical men in 3 cases, chiefly practical men in 6, and all of this class in 5 cases.¹ Of 13 cities where data on this point were secured, in 2 the masters (the opinion voiced generally by the chamber of industry) professed not to be satisfied, in 4 to be satisfied in part, and in 7 to be quite well satisfied² with the sort of teachers in the industrial schools. Most of the cases of satisfaction were in cities where all the trade instruction was given by practical men.

In some cases, as in Cologne, professional teachers with practical experience (as for a year) in handwork are satisfactory to the masters. Elsewhere the ideal is stricter. Thus the handworkers of Essen ask that the instruction in the improvement school in each trade be limited to study of the trade, trade drawing, arithmetic and principles of bookkeeping, civics, and business composition (not omission of workshop instruction), and that all of these subjects, except the civics and business composition, be taught by suitable teachers of the trade, trained in a (special) course.³ In Magdeburg the head of the trade and industrial schools stated that not only are professional teachers not in close enough relations with industry to teach in a practical way, but that practical men who devote themselves solely to teaching get out of touch with industry, and their teaching becomes less practical. All, he said, should be working in commercial shops during the same period that they are teaching.⁴

It has proved very difficult to secure skilled practical men who are also well fitted to teach. In some few cases, as in Magdeburg, men have been secured with both qualifications; but in most cities it has been found necessary or desirable to require the practical men to study teaching principles and methods in a special class established for them, either before beginning teaching or during their term of service. In Frankfort the director of the industrial improvement school stated that the masters without special theoretical training are unable to give the proper trade instruction, and that they themselves recognize this inability.⁵ Frankfort had in session while I was in the city a course of four weeks' length which was attended by industrial-school teachers from all over the Rhine Valley. Dortmund has a similar course for the populous district of the lower Rhine.

The difficulty of securing skilled artisans for trade teaching, on account of the low salary paid in the schools, is also a real one. Some

¹ Few in Berlin, Elberfeld, Duisburg; most in Hamburg, Munich, Mannheim, Cologne, Dortmund, Aachen; all in Plauen, Frankfort on the Main, Coblenz, Barmen, and München-Gladbach.

² Quite well satisfied in Plauen, Frankfort on the Main, Cologne, Elberfeld, Barmen, Dortmund, and München-Gladbach.

³ Denkschrift des Essener Handwerks, 1910, p. 11.

⁴ Stadtschulrat Dr. Francke.

⁵ Direktor Neuschäfer.

men in industry, as the guild of fine mechanics in Munich, claim that the low wage keeps out all thoroughly skilled men. Elsewhere it was learned that though the salary is not what a skilled master, engineer, or other skilled practical man can earn in his prime, yet the security of the school position (after a year of probation) and the retiring pension which is granted in most cities enables the schools to secure men who can earn for the time being sometimes far more outside. Much of the teaching is also supplementary work, carried on for a few hours daily, with but little disturbance to the teacher's outside occupation.

In the higher trade schools the quality of the teachers, as is to be expected, averages higher than in the improvement schools, and there is usually but little criticism of the class of teachers engaged. Skilled artisans or engineers almost always give the theoretical instruction, while the practical is imparted by artists, engineers, architects, and the best professional teachers.

The problem of workshops in the industrial schools is one of the most important, if not now the most important, of all the present problems of these schools. The greatest variety of practice and aim is found with regard to school shops. In the higher trade schools workshops are the rule. In the lower trade schools also they very frequently exist. Such schools are intermediate in this respect to the higher trade and the improvement schools. In the improvement schools we find no workshops in some cities, as Berlin and Coblenz, and, in general, throughout Prussia. In Dusseldorf there are shops in the improvement schools for most of the trades, and in Munich every industrial improvement school has a shop. In most of the cities where I inquired as to this point the improvement schools have a few, but only a few, shops.¹

In practically all improvement schools, whether there were shops or not, there were more or less models and demonstrating apparatus. The trades for which these few shops were established were always from the same small group: Confectioners and pastry cooks (*conditorei*), barbers, tailors, bookbinders, and printers. These trades are those in which the maximum advantage is gained from school shops for the minimum cost, and are also some of those where the masters especially desire shops in the improvement schools.

Workshops are quite generally desired in the higher trade schools. The great point at issue is whether workshops are desirable in the improvement schools. Of the cities visited, the masters in Leipzig, Plauen, Munich, Cologne, and Dusseldorf wish plenty of workshops, or more than they now have. In practically all other cities visited the masters desire only a few workshops in the improvement schools,

¹ Chemnitz and Plauen in Saxony, Magdeburg, Cologne, Elberfeld, Barmen, and Dortmund in Prussia.

or none at all. In most cases a few are desired, as for the trades above mentioned. In a few cities, as Barmen and Elberfeld—strictly factory cities—the cost of school shops is a main objection. This high cost, which is generally admitted to be inseparable from most sorts of shops, constitutes an objection, even in places where more shops are desired, as in Plauen. In the main, however, cost of shops does not prevent their presence where they are greatly desired.

But they are not in most cases greatly desired. The attitude of the masters in Munich may be recalled. There is a party among educators who wish to have workshops in the improvement schools and train the pupils practically as well as theoretically. The extremists of this party wish ultimately to relieve the masters of most or all of the training of their apprentices, and to shift the burden to the school. The masters, almost to a man, are opposed to any such procedure. Thus the handworkers of Essen, in a memorial to the mayor, say: "The improvement school has the task of extending the workshop training and not of displacing it." And again: "The school instruction must follow the order of progress of the apprentice in his shop step for step."¹ The fear of some that more school workshops may lead to the teaching workshop (*Lehrwerkstatt*), which may become a substitute for apprenticeship, has led the masters in some cities to oppose the school shops more than they otherwise would.² And such attitudes are held, despite the realization of many masters that the school shops shift from their shoulders some of the teaching burden.

The reason for this opposition to school shops is in part that the teachers in these shops in some cases are men not practically trained. If all workshop teachers were practical men, there would be less objection by employers to school shops. In Barmen and Elberfeld one chief reason for opposition to school shops is the fear of conflict between teacher and master, such as is claimed by some observers to exist in Munich. But most of the shop teachers are now practical men, and their proportion is increasing. Neither large cost nor the kind of teachers accounts for most of the opposition to school shops, though each contributes its influence.

The main objection to shops in the improvement schools is that they are of little use during the first year or two of apprenticeship. The average boy of 14 and 15, not yet much versed in the ways of industry in general and of his own in particular, can not, it is claimed,

¹ "The first year it should help the apprentice to find himself in his new environment—the shop, to recognize the tools and materials by name, form, purpose, and differences, and to comprehend the single process according to their order and to grasp the necessity of this order. The second year the emphasis should be on individual and more difficult (as mechanical) tools, properties of the chief materials, and working experiences. In the third year the goal should be set of giving the pupils a survey of the different spheres of work of their trade."—*Denkschrift des Essener Handwerks*, 1910, pp. 10, 14.

² As in Duisburg and Magdeburg.

benefit to any considerable extent from workshop training. If their first approach to practical work be in the school shop, they may become trained in habits unsuited to practical work if not actually harmful. Thus few schools can, and still fewer do, pay such close attention to economy of materials as commercial shops do from force of necessity. A habit of prodigality with materials may become ingrained in an apprentice from his school experience and be very hard to uproot. Most boys of 14 and 15 are not yet serious and interested enough to secure the good from school shops which such shops should give. And, finally, if there be one maxim more than another on which practically the whole structure of German industrial education rests, it is that some practical training in actual commercial work shall precede industrial school training.

In the case of the theoretical training of the first year of the improvement schools, this maxim is modified by substituting "accompanying" for "preceding," and some exceptions are found elsewhere in the system, as in the higher technical training in the technical high schools. For almost all grades and kinds of industrial training, however, the maxim is followed. Adherence to this idea is one of the keystones of Germany's success in industrial education. Whatever reason there is for its modification with regard to the first theoretical training of the improvement schools, there is less reason in the case of the shop training. For this can be secured in the shop of the master; the theoretical training generally can not be. The masters, as a rule, feel perfectly well able to instruct their apprentices adequately in the practical work of their trades; not so with regard to the theory. The theoretical background, now so necessary for proficiency, few masters have the time and many have not the ability to impart adequately. The masters quite generally recognize this fact and call consequently for specialized theoretical trade training in the improvement schools.

In many cases the masters may not give adequate practical instruction to their apprentices, due to specialization; but such specialization does not exist to the extent that it does in the United States. Further, it is very doubtful how far shops in improvement schools can correct such specialization. Though the improvement schools tend toward this end even when lacking shops, and doubtless in greater degree when they have shops, yet the higher trade schools have most effect of this sort. Both for results on specialization and for general efficiency shops during the last year or two of improvement school courses are much more likely to be fruitful than those during the first year or two.

In the higher trades schools, workshops are desired chiefly not to furnish the basic training in the trade, but to give opportunity for

experimentation, working out new designs, learning of new or unusual machines, and the like. The school shop is in no danger in Germany of usurping the place of the commercial shop.

A director of the chamber of industry in Aachen made some significant criticisms of the industrial schools. He said that the school men try to include too much in the improvement school, especially too much theoretical instruction. Theory the masters must have, but they think that the period of apprenticeship is only the beginning of the worker's industrial education. The school men think of it largely as the conclusion, and therefore crowd exchange, study of industry, bookkeeping, etc., all into three years. With regard to school shops, he said that some trades or processes could be taught in them, others not. Wrought-iron working and saddlery could not well be taught in school shops. In some trades, as that of cabinet-making, some processes could be taught, others not. Thus, inlaying can best be taught in school, for the master has not the long time required; and also planing, sawing, and the like, but not the making of a chair or table.

A peculiar and significant method of practical training is followed in the industrial improvement school of Frankfort on the Main. The school has no workshops, and none are desired. The great cost of workshops is not the reason for their absence. Theoretical training is chiefly desired, but practical training is also obtained by a peculiar cooperation between masters and school. The pupils are assigned by their industrial teachers practical tasks—for example, in the first year of woodworking, joints in wood. These they must make in their master's workshops and bring to school. The school will supply materials, or pay the master their cost if he so requires, but ordinarily he does not do so. The pupils usually do these tasks during working hours, but the longer ones are sometimes done after working hours.

In general, all classes favor the industrial schools. The workmen warmly approve them. Though their expense is great they have won a place so high that support is as a rule, freely granted to them. These statements apply to the cities and not necessarily to the country. In the country the benefits to be secured, number of workers considered, are not so great, and the cost per pupil is greater. Consequently the country industrial schools are backward as compared with the city schools.

To sum up: The German industrial schools are achieving in large measure the purpose for which they were established—industrial efficiency. They are not yet through developing, nor are their types finally fixed. They constitute a living, growing movement, which gives every promise of increasing in fruitful results on industry and thus on the comfort and culture of the German people.

PART III. CONCLUSION.

CHAPTER XIII.

SOME SUGGESTIONS FOR OUR INDUSTRIAL TRAINING.

The best training now provided for industrial workers other than those definitely preparing for supervisory and technicians' posts, is probably that imparted in a few comparatively large factories where an enlightened and progressive policy of industrial training holds, and where apprenticeship and a factory school cooperate in supplying it. Such are the schools of the General Electric Co., Brown & Sharpe Manufacturing Co., and Baldwin Locomotive Works, in this country, and Siemens & Halske Co. in Germany. Such training we have seen is unfortunately feasible in but few cases. Excellent though this partial solution to the problem is, it does nothing for the mass of our industrial workers.

My inquiries into German industrial training have led me to wish that our own country had not allowed apprenticeship to go into such a decline, and to seek for its revival. Wasteful though the old apprenticeship was of the apprentice's time and effort, apprenticeship in its newer forms, both in Germany and the United States, has in it much of promise for the future training of industrial workers. It is the main reliance as we have seen of Germany in her industrial training, the industrial schools being but supplementary. A visit to Germany is an excellent corrective to the one-sided view often found in our country, which seeks to displace the shop by the industrial school.

Is it not possible to bring about a revival of apprenticeship in this country? It is undoubtedly desirable. No better way, or even as good, has yet been devised for the main training of the mass of industrial workers than in the shops where they are employed and by those who supervise their work. This statement holds of almost all industries, despite the ravages of specialization. Government action (State) might aid in bringing about the wider practice of apprenticeship. Apprentice laws, such as those of the German Empire, might be adopted by the States; or less detailed and thorough laws involving the minimum of Government action in the matter and the maximum of private initiative consistent with the purpose to be attained. But we must not deceive ourselves into thinking that

legislation alone can increase the practice of apprenticeship to any marked degree. Apprenticeship will grow in this country only if there is increased demand for it by boys (and girls) who enter industries, by their parents, and also by employers. Many or most employers, though desirous of obtaining plenty of skilled labor, are all too ready, on account chiefly of the exigencies of competition, to avoid the burden of training workers efficiently.

If those exigencies be so modified by law that all employers alike must pay in the first instance the cost of adequate training of any youthful workers whom they may employ as apprentices, then burdens on the employers will not be serious. Firms employing bona fide apprentices to-day find that their apprenticeship system pays, and indeed were it not so they would scarcely continue the system. In Germany apprentices are regarded as paying, and often as indispensable. This is in part so because adjustments have taken place there, such as would also occur here, placing on consumers or on the apprentices a portion at least of any undue burden at first borne by any particular class or group of employers. The burden might be shifted to consumers in part by raising the prices of products, but this tendency could have but a limited play, because of the tendency of demand to decrease with rise of price. Whatever expense or other burden is incident to the training of apprentices by their employers, being inseparable from and incurred only by their employment, would tend to be charged against the value of their services. The net or true value of their services to their employers would thus be the measure of the wages payable to them. This net value of the apprentice's service is usually very small at first; it increases at an accelerated rate, and sometimes at the close of an apprenticeship is almost as great as that of a journeyman. Thus any cost or burden of apprentice training by employers is likely *generally* to rest chiefly on the apprentices, in the form of lower wage than they could secure were they not learners as well as workers. The small wages which employers can pay apprentices constitute, as we have seen, a serious hindrance to the choice of apprenticeships by parents and boys, especially the latter. This hindrance can be overcome only by education as to the value of skill to the worker.

Apprenticeship, then, from the employers' standpoint, already pays some American employers, and can be made with appropriate laws equalizing competitive conditions in this respect to pay employers generally. Notwithstanding this prospect, a marked demand for apprenticeship is much more likely to come from the boys and girls and their parents than from employers.

In what way, then, if at all, is the demand for apprenticeship on the part of industrial workers to be greatly stimulated? For answer, I believe that the movement for vocational guidance now springing

up in the United States, and with every prospect of rapid spread, is likely to serve as the needed educator and stimulator of demand for apprenticeship. Vocational guidance is not the choice of a vocation for a child, nor the securing of a position for him, though free employment agencies are sometimes closely linked with the movement. It is the aiding of parents and child, by wisely selected data and sympathetic insight into the child's tastes and capacities, to choose wisely a vocation for him or her and to take the proper steps to prepare for it. The extent of this very young movement may be gathered from the facts that "movements to promote vocational guidance have been undertaken in New York, Boston, Chicago, Cleveland, Philadelphia, Pittsburgh, St. Louis, and several other cities," and that "the national conference on vocational guidance, held in Boston on November 15 and 16, 1910, was attended by delegates from 35 cities."¹

Apprenticeship has declined in recent years for two chief reasons: The employers in many cases refused to accept apprentices or made of their so-called apprenticeship a pretext for unskilled child labor, and the children (or their parents for them) refused to enter apprenticeships in view of the lower beginning wage secured there than in unskilled work. To minimize the latter cause is one of the chief aims of the vocational guidance movement. One of the fundamental failures of our present system is an ignorance of industrial facts on the part of many workers and their children and their shortsighted choice of occupations, almost regardless of the future. A dollar spent now in furthering this movement, designed to aid in every feasible way right choice by children and parents of a vocation, is likely to be of more value than several dollars spent in fully equipped and expensive trade schools.

Increased demand by workers alone for apprenticeship will not suffice to insure its real increase. Many boys now enter shops or factories as "apprentices" only to find that they have been misled and exploited, and are not really being taught a trade, or even a full branch of one. Such cases point to the legitimate function of the State and the way in which law can improve the prospects of apprenticeship. A thoroughly good and modern apprentice law can regulate the conditions of entrance upon and of leaving an apprenticeship, can say who may take and who teach apprentices, can protect both employer and apprentice against breach of contract or other illegal action by the other, and can insure that the training shall be adequate, so far as the degree of specialization in each shop and other conditions permit. The main function of such a law is to protect both parties, and chiefly the apprentice, in actually obtaining what

¹ 25th An. Rept. Com'r of Labor, Ch. XV, Vocational Guidance, pp. 411, 412. Also to be mentioned on this movement is: Meyer Bloomfield—*The Vocational Guidance of Youth*, 1911.

he seeks and what is claimed to be offered him.¹ Manifestly the execution of such a law requires dealing in technical matters, which is best treated by experts. For this reason semiofficial administrative bodies, made up of employers or of employers and employees, and established in the chief industrial cities or districts of each State, would be of great public service. The chambers of industry of Germany give us the object lesson as to what such bodies can do for industry; we may readily establish similar bodies, modified so far as seem desirable to meet our special needs and ideals. Thus to suit our more democratic practice and ideals, the employees might well be given a larger voice in such bodies than is the case in Germany; and indeed it is unlikely that organized labor would support such a plan were this not done. The German guilds again show us what local employers' associations, such as now exist widely in the United States, can do to further apprenticeship and aid State and chamber of industry in the efficient regulation of employers and apprentices alike.

Revival of apprenticeship alone will not solve the problem, and this chiefly for two reasons: One is the great need for technical knowledge in modern industry; the other is specialization. The need for technical knowledge can be best met in industrial schools. Specialization in industry is a much harder problem to deal with. It is, wherever present, the weak spot of apprenticeship. The Germans, with all their traditional allegiance to apprenticeship and well-rounded trade training, have been forced to capitulate with specialization. Their National Industrial Law declares that a master must train his apprentice in the whole trade for which he is apprenticed, *so far as that is carried on in the master's shop*. Much one-sided training results, which the schools correct in part by a broader view, and sometimes by broader shop practice. At best, specialization now permanently with us tends, with all its high efficiency, toward weakening narrowness for the specialized worker. What we should strive for is such broadening industrial training as will supplement the narrower range of skill and knowledge and give the specialized worker greater resource. Specialization is probably more widespread in the United States than in Germany, and this constitutes an added need which we have for industrial education greater than that present and recognized in Germany.

Industrial schools, then, we must have, and in far greater numbers, to meet the needs of far more workers than at present. Otherwise we can make little claim to really popular education of the sort closest to the worker's activities. Our citizens are already stirred to the

¹ Wisconsin passed, June 15, 1911, an admirable and truly modern apprenticeship law. This law is of such great significance for apprenticeship in this country that it is given in full in Appendix B. The results of this law, modeled on German experience, and to be studied in connection with the Wisconsin compulsory improvement school law of 1911 (the text of which is given at the close of that of the apprenticeship law) are of great interest to those concerned with the problems of apprenticeship and industrial education.

need for industrial education, as attested by a number of new schools recently founded by public funds, and numerous State commissions on the subject. Soon there will be much money spent on industrial schools; and when the American people want something badly, for public or private purposes, they spend money freely. There will be much opportunity for wasting of public funds by unwise choice of the kind of schools to be established and supported. What kind of schools, then, should we develop?

The present is a period of experimentation in industrial education in Europe, and even more so in this country. The nature of the subject is such that theorizing is relatively lacking in significance; experience is the safest guide. It is for this reason chiefly that German experience, probably the ripest and most fruitful in this field of any country, is of so much importance. We must speak cautiously as yet, till our experience be fuller, and must be content in large part to follow the method of experimentation. We must try all things, prove that which is good. Our country is so vast, and so varied in its industries, that there may well be considerable differences in the schools best suited to each section. Yet the types of school are likely to be the same throughout the country, and possibly so throughout the world. The needs of different industries, and even more of different pecuniary classes of workers, are likely to cause even greater differences in the kinds of schools desirable. We must have a number of different kinds of schools, and no amount of planning will enable us to foresee all the special and local modifications that may with advantage arise.

The kinds of industrial schools divide themselves according to categories as fundamental as any into whole-time day schools and part-time schools (day or evening). The importance of this distinction arises from the limitations to the number of workers who can afford to attend the whole-time schools. Possibly at least 30 per cent of the rank and file of workers in our great industrial centers can not, as judged by severe standards of living, afford to keep their children in day school any longer than the law requires.¹ A larger number think themselves unable; others do not think longer school attendance worth while, and thus add to the number of those who, by reason of choice or necessity, will not attend schools that keep them from earning. We can not predict the proportion that will attend day industrial schools; we may assume that it would be more than those who now attend the day schools beyond the legal requirement, but we may be sure that it would be but a small proportion of all industrial workers. German experience bears this out. We are richer per capita and more of our industrial workers may for that reason attend such schools than in Germany.

¹ Cf. ch. 4, pp. 44-45.

Numerous questions arise with respect to these schools. Shall they be primarily trade schools, aiming to teach the practice as well as theory of the trades, or primarily general industrial schools, giving only a preliminary training before entrance on apprenticeship? Trade schools have so far been the commoner in the United States. Though useful in their sphere, they are subject to serious objections not applying to other types of schools in anything like the same degree. They are very expensive. They usually teach but few trades, and can not teach many without a very great investment in plant, nor can they teach many trades economically without many students. They are subject, with probably no considerable justification in the cases of most, but still subject more than are other types of industrial schools, to trades-union suspicion. To teach a whole trade, they must keep the student three or four years usually, without wage, and even then he must usually serve a year or more as apprentice before becoming a journeyman. Certain phases of trade training, as learning economy of materials, acquiring speed, and numerous others in which few school shops can be fully adjusted to practical trade needs, make the school training no sufficient substitute for shop training. Certain of these difficulties are elastic; they can be and have been overcome, but at best the trade school which acts wholly or chiefly as a substitute for apprenticeship, as ours in the United States do or aim to do, forces itself into the sphere in which schools are weakest and commercial shops are strongest. The stronghold of the commercial shop is practical trade training; that of the industrial school is technical training. Each can undertake the functions in which the other excels, but with the risk of poor results, or what is tantamount, good results achieved at too great cost. Thus technical training is imparted to advantage in but few factories aside from the use of school methods, including the hiring of a special teacher or the turning of the energies of an official largely to the work of a teacher. Our trade schools in this country, in turn, have sometimes not been very practical, and this often because they used school to the exclusion of shop methods. The cost of trade schools is considerable, exceeding that of most other types of industrial schools chiefly in the item of equipment.¹ In addition to this cost, the total cost of trade school training should include the wages foregone by the pupil during the course. The sum of these costs has been great both in mass and also per pupil.

¹ Our data on costs of American industrial schools are very inadequate. An article by H. C. Brandon: "The cost of industrial education in the United States: A study of fifty typical schools," in *Teachers College Record*, September, 1911, reveals the confusion in the available data from school reports. It shows far greater variation in costs as between individual schools of a given type than between the median costs of different types of schools. The median cost of industrial education in all types of schools is found to be (exclusive of the important element of first cost of building and equipment) \$4.80 per pupil per month (based on enrollment), with a median variation of 126 per cent from the median. This figure may be compared with the cost (also excluding first cost of equipment) of \$3.20 per pupil per month (based on average daily attendance) in common schools, as stated by Prof. Strayer in "City school expenditures," and quoted by Mr. Brandon.

That boys and young men have entered and completed such schools at all testifies to the difficulty of securing adequate trade training otherwise and to the thoroughness of the school training in some cases. Specialization is largely responsible for the need for such schools. The greater degree of specialization in the United States differentiates our situation from that of Germany. For this reason we need more trade schools, or other schools imparting practical training, than does Germany. But it would be a great mistake to rush pell-mell into establishing trade schools for this reason without thorough investigation in each instance. The main task of practical instruction in industry is best fulfilled by employers.

The cause of practical industrial education would be forwarded by enacting and enforcing suitable apprenticeship laws, by bringing about cooperation between trade associations and the State for the regulation of apprenticeship, by aiding every effort of the vocational guidance movement, or otherwise to promote intelligent and far-sighted choice of occupation, and by providing cheaper and more effective schools for supplementing the practical training to be received in commercial shops and factories.

There is danger that the several States and communities of the United States will waste much money on industrial education; waste by expending great sums which will bring much less return than if spent otherwise, but with the same general aim of bettering industrial training. The greatest caution is imperative in considering the need and probable results and counting the cost in each specific case before increasing the number of trade schools. The trade schools that appear to give the greatest promise of success, both results and cost being considered, are those which might be classed as higher trade schools, designed primarily for the further education of such mechanics as offer themselves, having first learned and practiced their trades. But elementary day trade schools can not, I believe, be satisfactory as our main dependence for industrial education of the masses.

No sharp line differentiates general industrial from trade schools. But the types are different. The general industrial schools are much more feasible than elementary trade schools and, for the mass of workers, more serviceable than any form of trade school. Their course is generally shorter than that of a trade school, their training less specialized for distinct trades. So far as such schools have been established in the United States, which has been but a few years, they have no great number of branches or departments of training. In time they will probably develop more branches of training than the trade schools teach trades, for their training is less elaborate and expensive than that of the trade schools.

Much of the need for such general industrial or preparatory industrial schools has been taken up in chapters 2, 3, and 4. No school in Germany corresponds exactly to these schools, though some

trade schools approximate them. We have greater need than Germany for such schools. One of the greatest differences between the two industrial training situations in the two countries is that in Germany most boys and girls, whether entering skilled or unskilled industries, go to work at the age of 14, while in the United States few employers will accept apprentices for the skilled trades younger than 16. The German practice has become so rooted in habit that the Germans neither ordinarily question its expediency, nor do they generally give very definite reasons for the existence of the custom. Poverty is doubtless largely responsible for it, and in this respect we probably have the advantage. Probably a larger number of our families can afford to keep their boys from work until they are 15 or 16, if they consider this worth while, than in Germany. This possibility is to be regarded as a national asset. The question then arises: What shall be done with the years between 14 and 16 of those who leave the common school at the earlier age, and enter the skilled trades? The preparatory industrial school suggests an answer applicable to many boys and girls. A much larger number of boys and girls will probably be able and willing to attend a general industrial school for one or two years between the time when they leave the common school and the entry on apprenticeship in a skilled trade than would be able and willing to make the sacrifice for a longer trade-school training. Such attendance will cost both them and the public less than trade-school training, but will doubtless give the sort of practical as well as theoretical training which broadens the industrial outlook of the pupils and makes them familiar with the elements both of the theory and practice of a broad range of operations. Shops will be found in such schools though not necessarily such complex shops as in trade schools.

The training thus given, essentially preparatory, elementary, and broadening, can be made, I believe, the best gateway to apprenticeship training for a large number of workers. The pupils of such schools (and of trade schools) are most likely to be acceptable to employers as apprentices in the skilled trades. Both types of schools are likely to shorten the apprenticeship coming after school attendance, and such shortening, if not extreme, should not arouse the antagonism of the trade unions. Its type of work will also doubtless be of much value to correct the one-sided specialization to which many or most of its pupils will later be subject. One of the chief reasons for trade schools in our country is this need of correcting specialization. As stated above, we can not expect, by any sort of apprenticeship law or otherwise, to greatly change the extent of specialization in industry. However, the general industrial schools will, I believe, prove themselves as capable as the trade schools of correcting one-sided specialization. Certainly, if their result on each

pupil in this respect be nearly as great as that of the trade schools, it will be attained at less cost and will benefit greater numbers.

Both industrial and trade schools raise a question, one suggested by the almost invariable German practice of obtaining the first industrial training in the commercial shop. Shall we do likewise? Obviously for those of our boys and girls who enter the skilled trades at an age not earlier than 15 or 16 years, and leave common school at 14, this is impossible. For such youthful workers the best plan, if they can afford it, is to attend a general industrial or trade school during the interval. Wherever the particular situation does not forbid it, however, it is thoroughly desirable to apply the German principle. In passing, I may say that one point of distinct superiority of the German higher technical education (except in the technical high school) to that in the United States, is that in Germany a considerable amount of practical work must precede the theoretical. The truth of this superiority is beginning to be realized here, especially when the superior results are noted of cooperation between technical colleges and commercial shops, as in the case of the University of Cincinnati.

With only the types of schools so far discussed, we shall not yet have achieved really popular industrial education in large measure. The masses will probably be unable, will consider themselves unable, or will for other reasons fail to attend these schools. The type of school which best meets the needs of the great masses of industry, both skilled and unskilled, is the improvement school. The need for schools of this type is undoubted. More and more its virtues are being appreciated in this country. We now have such schools in Cincinnati and Boston, and in Wisconsin; they are advocated by educators for New York City, and we may expect their rapid spread. Their advantages are manifold. They can be made to meet the needs for industrial training of all not better cared for. They are flexible and require a comparatively small plant. They are cheap—an aspect of great importance. Industrial education is at best expensive, and its expense is likely to cause the undue curtailment of facilities in many localities, such that the needs of some workers will not be met. In the past we have furnished comparatively large facilities for industrial education for the few, but insignificant facilities for the many. In the past this direct neglect of the many was involved in the best use of small facilities. With but few industrial schools, the need for higher technical training was so great that some schools were drawn from service to the ranks of industry, to service of the technical leaders. The needs for higher technical training are now well met. The great present call is for such industrial education as will directly help the masses. The improvement school has been found in Europe,

and especially in Germany, to be the most efficient instrument for the attainment of this end. There is every reason to believe that a similar efficiency will result in this country from their establishment here. Industrial improvement schools, for reasons already fully discussed, should most certainly be in the daytime. German experience emphatically approves of this practice. Shall attendance be voluntary or compulsory? The history of compulsory daytime attendance in Germany will probably be repeated in the United States wherever the like compulsion is adopted: First, opposition from employers; later, acquiescence. The example of German and other employers who now tolerate or even desire compulsory attendance may and should make the period of adjustment of employers to the new situation shorter and easier. German experience has amply shown that voluntary improvement schools accomplished but little as compared with the same schools when made compulsory. The number of pupils reached was far greater and the average quality of work usually but little lower. However much many of our employers as men may wish to see the welfare of their youthful workers subserved, the stern necessities of competition force them not to do anything which will lessen the efficiency of their shops as measured in dollars and cents, and often force them even to neglect ultimate advantage for present gain. If we are serious in our desires to prevent exploitation of our child workers, one of the surest ways to protect them is to require their attendance at a school which will aid them to attain industrial efficiency. Such compulsory attendance might well be, as in much of Germany, for three years or until the ending of the term in which the eighteenth birthday is reached. The number of hours a week, the hours when these should meet, and the number of classes for pupils in different trades and occupations are matters to be decided locally and experimentally in large part. It may prove desirable to open the improvement schools first as evening schools, where the employers are strongly opposed to compulsory day attendance. Later, when they see the good results of these schools, the classes may be shifted to the daytime. Likewise the attendance may be voluntary for a time, until the schools have won the approval of the employers and others, and later compulsory. It is most probable that such schools will be first established in this country as voluntary schools.

The improvement schools can probably have separate classes, as in Berlin and Munich, for those in many different trades and occupations. They are much better able to do this than are full-time trade or general industrial schools, because they will have less extensive shop equipment and because the number of pupils in the improvement schools will probably far exceed those in other industrial schools. With regard to the comparative importance of improve-

ment and other schools, Dr. A. A. Snowden says, "throughout the civilized world the evening (or part-time day) industrial improvement school enrolls 20 pupils to every 1 who attends the other types of industrial vocational school."¹ The matter of shop equipment raises the question as to how much practical workshop instruction should be given in these schools. Without reviewing the German experience on this point, we may note at once a difference in German and American needs. Our industries are more specialized, and the need for correction of one-sided training is therefore greater. Such correction can best be done in schools, and to be at all efficient needs workshop instruction, for many of our workers never perform the operations of more than a narrow branch of a trade. Thus, in improvement schools, as in other industrial schools, workshops are more needed than in Germany. Whether this need is so great as to justify improvement schools in which most of the instruction is given in the school shop, and the lesser portion only is technical (theoretical) training, is very doubtful, but must be worked out by experiment. If our improvement schools have more workshops than those in Germany, as they should have, their cost will be correspondingly greater. Notwithstanding this greater cost, they will remain probably the cheapest and most efficient type of industrial school.

Intermediate between the improvement schools, which take but 4 to 10 hours a week of the worker's time, and the full-time trade or preparatory industrial schools are a number of part-time schools. The specific divisions of time between school and shop are various. These schools are growing rapidly, and with good reason, for they furnish for those pupils who can afford it one of the best means of learning thoroughly both the theory and practice of their trade. Such part-time schools are one of the chief contributions of the United States to the world problem of industrial education. Improvement schools may be classed as part-time schools, but the term is used chiefly for schools which occupy a larger portion of the worker's time.

The control of the industrial schools of all types is best vested, according to German and other experience, in some body or bodies not dominated by the schoolmen, but which receive the aid of competent educational experts. State aid, and accompanying measure of control and standardization, is likely to play a large and effective part in our future industrial education, as it has in Germany. Employers should be represented on school boards, as in Germany, but, as is seldom done there, workers also should be allowed a place. The industrial schools should keep in the closest touch with each of these classes. Only by such close touch with, and real control by, the two classes most directly affected can our industrial education be made both efficient and truly democratic.

¹ Rep. of N. J. Commis. on Indus. Educ., 1909, p. 7.

APPENDIX A.

A GERMAN APPRENTICE CONTRACT.

The following apprentice contract is executed between the firm of Friedrich Krupp, share company in Essen on the Ruhr, and (apprentice's name), born at (place of birth), to (name of parents), accompanied by his (parent or guardian, and name) as his legal representative.¹

SECTION 1.—The firm accepts (apprentice's name) as apprentice for their cast-steel factory and obligates themselves to have him trained as a (trade or branch in which apprenticed) under the direction of a suitable representative. The apprentice is thrown under the fatherly authority of the representative.

SEC. 2.—The apprentice is obligated to obedience and truth, to industry and proper conduct.

He must regularly attend, under the direction of the firm, an improvement school, and present the certificate there obtained, immediately on its receipt, to the official set over him.

SEC. 3.—The apprentice is responsible for his support and for all other things necessary, with the exception of the tools necessary to his work.

He shall receive from the day of his entrance on apprenticeship² pay for each working day, which shall depend on his conduct, ability, and efficiency, according to the following scheme:

Daily pay of apprentices.

Age of entrance.	Year of apprenticeship.		
	First.	Second.	Third.
Between 14 and 15 years.....	<i>Marks.</i> 0.50-0.70	<i>Marks.</i> 0.80-1.00	<i>Marks.</i> 1.10-1.50
Between 15 and 16 years.....	.70- .90	1.00-1.20	1.40-1.80

Qualified apprentices may be allowed to undertake piecework in their third year, and for this receive up to 50 pfennigs a day in excess of their daily wage.

No subtraction from the wage of the apprentice shall be made for the working hours in which he attends improvement school.

SEC. 4.—The apprenticeship begins with the (date) and lasts three years. Work days in which the apprentice has neglected (his work) shall not be included in the reckoning of the length of apprenticeship, but so much more must be added. With good conduct and efficiency, the repetition of neglected days to a maximum of 25 may be remitted.

SEC. 5.—The first three months of the apprenticeship are a period of probation, during which either party may withdraw from the apprentice contract.

After the probation period the firm is authorized to discharge the apprentice at once before the ending of the contractual time in the cases stated in section 123 of the National Industrial Law (see supplement³), or when he has repeatedly violated his

¹ A guardian, to execute an apprentice contract, must receive the approval of the guardianship court.

² Before entering on apprenticeship in the Krupp works, a boy must first serve a year as errand boy or in similar capacity.

³ Sec. 123 is given in full; cf. ch. 7, p. 15.

duties of obedience and truth, industry and proper conduct, or neglected his attendance on improvement or trade school. (Sec. 2.)

SEC. 6.—On the part of the apprentice, the apprenticeship may be ended in the cases of section 124, numbers 1, 3, 4, and 5 of the National Industrial Law (see supplement),¹ and also if the firm neglects their legal duties toward the apprentice in a manner dangerous to his health, his morals, or his training, or misuses the right of fatherly authority, or becomes unable to fulfill their contractual duties.

SEC. 7.—On the close of the apprenticeship a certificate shall be given to the apprentice concerning the length of the apprenticeship and the knowledge and skill acquired during it, as well as concerning his conduct. An apprentice letter (Lehrbrief) shall be given only when the contractual period of apprenticeship has been completed or shortened with approval of the firm.

SEC. 8.—The firm reserves to itself the payment to the apprentice on regular completion of apprenticeship, when his conduct and efficiency was, according to the decision of the official in charge, good, of a reward not to exceed 150 marks.

The firm decides according to its free judgment whether the payment is to be refused wholly or in part, and whether it is to be made to the apprentice himself or to his legal representative.

SEC. 9.—Subject to the provisions of this contract, the apprentice is subject to all regulations for the workers of the cast-steel factory, especially the work regulations.

For other matters, so far as there are no regulations in the present contract, the provisions of the National Industrial Law apply.

SEC. 10.—Apprentices who remain at the steel factory after the close of their apprenticeship shall, on continued good conduct and efficiency, so far as possible, be given opportunity to train themselves further and to progress.

Essen/Ruhr, the (date)

.....
(Signature of the apprentice.)

.....
(Signature of the legal representative.)

Fried. Krupp
Aktiengesellschaft.
Das Direktorium.

The above apprentice contract is that used in the great Krupp works, employing 30,000 men, besides officials. The normal contract forms of the chambers of industry for handwork in Prussia are very long and provide for almost all questions that might arise under the apprenticeship. Their main provisions are presented in the exposition of the National Industrial Law, in chapter 7. Different forms of contracts are sometimes used for handworkers and for factory workers.

¹ Sec. 124 is given in full; cf. ch. 72, p. 16.

APPENDIX B.

THE WISCONSIN APPRENTICE LAW OF 1911.¹

SEC. 2377. Every contract or agreement entered into between a minor and employer by which the minor is to learn a trade shall be known as an indenture, and shall comply with the provisions of sections 2378 to 2386, inclusive, of the statutes. Every minor entering into such a contract shall be known as an apprentice.

SEC. 2378. Any minor may, by the execution of an indenture, bind himself as hereinafter provided, and such indenture may provide that the length of the term of the apprentice shall depend on the degree of the efficiency reached in the work assigned, but no indenture shall be made for less than one year, and if the minor is less than eighteen years of age the indenture shall in no case be for a period of less than two years.

SEC. 2379. Any person or persons apprenticing a minor or forming any contractual relation in the nature of an apprenticeship without complying with the provisions of sections 2377 to 2387, inclusive, of the statutes, shall, upon conviction thereof, be punished by a fine of not less than fifty nor more than one hundred dollars.

SEC. 2380. It shall be the duty of the commissioner of labor, the factory inspector, or assistant factory inspectors to enforce the provisions of this act and to prosecute violations of the same before any court of competent jurisdiction in this State.

SEC. 2381. Every indenture shall be signed:

- (1) By the minor.
- (2) By the father; and if the father be dead or legally incapable of giving consent, or has abandoned his family, then
- (3) By the mother; and if both the father and the mother be dead or legally incapable of giving consent, then
- (4) By the guardian of the minor, if any.
- (5) If there be no parent or guardian with authority to sign, then by two justices of the peace of the county of residence of the minor.
- (6) By the employer.

SEC. 2382. Every indenture shall contain:

- (1) The names of the parties.
- (2) The date of the birth of the minor.
- (3) A statement of the trade the minor is to be taught, and the time at which the apprenticeship shall begin and end.
- (4) An agreement stating the number of hours to be spent in work, and the number of hours to be spent in instruction. The total of such number of hours shall not exceed fifty-five in any one week.
- (5) An agreement that the whole trade, as carried on by the employer, shall be taught, and an agreement as to the time to be spent at each process or machine.
- (6) An agreement between the employer and the apprentice that not less than five hours per week of the aforementioned fifty-five hours per week shall be devoted to instruction. Such instruction shall include—
 - (a) Two hours a week instruction in English, in citizenship, business practice, physiology, hygiene, and the use of safety devices.
 - (b) Such other branches as may be approved by the State board of industrial education.

¹ Laws of Wisconsin relating to employment of women and children, industrial education and truancy. Wisconsin State Bd. of Indus. Educ., Bull. no. 1., pp. 24-26.

(7) A statement of the compensation to be paid the apprentice.

SEC. 2383. The instruction specified in section 2382 may be given in a public school, or in such other manner as may be approved by the local board of industrial education; and if there be no local board, subject to the approval of the State board of industrial education. Attendance at the public school, if any, shall be certified to by the teachers in charge of the courses, and failure to attend shall subject the apprentice to the penalty of a loss of compensation for three hours for every hour he shall be absent without good cause. It shall be the duty of the school officials to cooperate for the enforcement of this law.

SEC. 2384. It shall be lawful to include in the indenture or agreement an article stipulating that during such period of the year as the public schools shall not be in session the employer and the apprentice may be released from those portions of the indenture which affect the instruction to be given.

SEC. 2385. If either party to an indenture shall fail to perform any of the stipulations, he shall forfeit not less than ten nor more than fifty dollars on complaint, the collection of which may be made by the commissioner of labor, factory inspector, or assistant factory inspectors in any court of competent jurisdiction in this State. Any court of competent jurisdiction may, in its discretion, also annul the indenture. Nothing herein prescribed shall deprive the employer of the right to dismiss any apprentice who has willfully violated the rules and regulations applying to all workmen.

SEC. 2386. The employer shall give a bonus of not less than fifty dollars to the apprentice on the expiration of the term of the indenture, and also a certificate stating the term of the indenture.

SEC. 2387. A certified copy of every indenture by which any minor may be apprenticed shall be filed by the employer with the State commissioner of labor.

This apprentice law, the most advanced in the United States, is in several respects very like the German national law, described in chapter 7. It is to be studied in connection with the Wisconsin compulsory improvement school attendance law of 1911, which is here given:

CONTINUATION AND EVENING SCHOOLS.¹

(SECTION 1728c-1) 1. Whenever any evening school, continuation classes, industrial school, or commercial school shall be established in any town, village, or city in this State for minors between the ages of fourteen and sixteen working under permit as now provided by law, every such child residing within any town, village, or city in which any such school is established shall attend such school not less than five hours per week for six months in each year until such child becomes sixteen years of age, and every employer shall allow all minor employees over fourteen and under sixteen years of age a reduction in hours of work of not less than the number of hours the minor is by this section required to attend school.

¹ Laws of Wisconsin relating to employment of women and children, industrial education and truancy. Wisconsin State Bd. of Indus. Educ. Bull. no. 1, p. 10.

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ILLITERACY IN THE UNITED STATES

AND AN

EXPERIMENT FOR ITS ELIMINATION

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(Continued on p. 2 of cover.)



A "MOONLIGHT SCHOOL" IN ROWAN COUNTY, KY.

Sixty-five pupils were enrolled, and 23 of them were illiterate when they entered; 3 were preachers.

ILLITERACY IN THE UNITED STATES

AND AN

EXPERIMENT FOR ITS ELIMINATION



WASHINGTON
GOVERNMENT PRINTING OFFICE,
1913



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LETTER OF TRANSMITTAL.

DEPARTMENT OF THE INTERIOR,
BUREAU OF EDUCATION,
Washington, D. C., April 4, 1913.

SIR: I submit herewith, for publication as a bulletin of the Bureau of Education, a statement showing in some detail the amount of illiteracy in the United States among men, women, and children over 10 years of age according to the Federal Census of 1910; also a brief statement of an experiment which has been conducted for nearly two years in one of the mountain counties of eastern Kentucky having a large number of illiterates in its population, to ascertain if it were possible to teach these illiterate grown-up men and women and older children to read and write, and whether other men, women, and children with very meager education would respond to the opportunity to learn more of the arts of the school. The success of this experiment, made under very difficult circumstances, has been so great as to inspire the hope that, with the cooperation of schools, churches, philanthropic societies, cities, counties, States, and the Nation, the great majority of the five and one-half million illiterates over 10 years of age in the United States may, in a few years, be taught to read and write, and something more; while millions of those whose school days were very few and who are little above the line of total illiteracy may be helped to make good to some extent their deficiencies due to lack of opportunity in childhood.

This bureau expects to have ready for publication soon some account of other efforts in this country to teach illiterates to read and write, and also some account of the efforts which some foreign countries have made to eliminate illiteracy. These statements are submitted for publication at this time because of the fact that a bill, introduced near the close of the last session of the Sixty-second Congress, looking to the reduction of adult illiteracy in this country will probably be introduced early in the Sixty-third Congress.

Respectfully submitted.

P. P. CLAXTON,
Commissioner.

The SECRETARY OF THE INTERIOR.

ILLITERACY IN THE UNITED STATES AND AN EXPERIMENT FOR ITS ELIMINATION.

The Federal Census for the year 1910 shows that at the time the census was taken there were in the United States 5,516,163 persons 10 years of age and over unable to read and write. This was 7.7 per cent of the total population 10 years of age and over. The full meaning of these figures will be better understood when it is remembered that the number of illiterate persons 10 years of age and over in the United States is less by only a few thousands than the total population 10 years of age and over in all the New England States, or in the States of Montana, Wyoming, Colorado, New Mexico, Arizona, Utah, Nevada, Idaho, Washington, Oregon, and California, and more than the population 10 years of age and over in the cities of Boston, Baltimore, Washington, Buffalo, Cleveland, Detroit, Cincinnati, Pittsburgh, Indianapolis, Louisville, New Orleans, St. Louis, Kansas City, Minneapolis, St. Paul, Seattle, Spokane, San Francisco, and Los Angeles. In double line of march, at intervals of 3 feet, these 5,516,163 illiterate persons would extend over a distance of 1,567 miles—more than twice the distance from Washington City to Jacksonville, Fla. Marching at the rate of 25 miles a day, it would require more than two months for them to pass a given point. A mighty army is this, with their banners of blackness and darkness inscribed with the legends of illiteracy, ignorance, weakness, helplessness, and hoplessness—too large for the safety of our democratic institutions, for the highest good of society, and for the greatest degree of material prosperity.

Their ignorance is not wholly nor chiefly their own fault. To a large degree it is due to the lack of opportunity, because of the poverty or negligence of the States and communities in which they spent their childhood.

Of these illiterates, 3,184,633, or 58 per cent, were white persons, 1,534,272, or 28 per cent, were native-born whites, and 1,650,361, or 30 per cent, foreign-born whites; 2,227,731, or 40 per cent, were negroes. The remaining 2 per cent were Indians, Chinese, Japanese, and others.

Of the total number of illiterates, 1,768,132 lived in urban communities and 3,748,031 in rural communities, in small towns, villages, and the open country. Of the urban population, 5.1 per cent were illiterate of the rural population, 10.1 per cent.

Of the total rural population of the United States, 4.8 per cent of the native white persons and 40 per cent of the negroes 10 years of age and over were illiterate.

Of the urban population, 0.8 per cent of the native white persons and 17.6 per cent of the negroes were illiterate. The per cent of illiterates among the foreign-born whites of the urban population was much larger than that of the native white population. In the New England, Middle Atlantic, and East North Central States, the percentage of illiteracy was greater in the urban than in the rural population. For the rest of the country, illiteracy in the rural population was from two to five times greater than in the urban population.

The following tables show that the per cent of illiteracy in the population from 10 to 20 years old was much less than in the population over 20 years of age. Of the total 5,516,163 illiterates, only 818,550 were between the ages of 10 and 20, while 4,697,613 were over 20.

ILLITERATES BY AGE PERIODS.

		Per cent.
<i>10 to 14 years of age:</i>		
Total.....	370, 136....	4. 1
White.....	144, 675....	1. 8
Negro.....	218, 555....	18. 9
<i>15 to 19 years of age:¹</i>		
Total.....	448, 414....	4. 9
White.....	226, 432....	2. 8
Negro.....	214, 860....	20. 3
Males nearly 50 per cent.		
<i>20 to 24 years of age:</i>		
Total.....	622, 073....	6. 9
White.....	367, 669....	4. 6
Negro.....	245, 860....	23. 9
<i>25 to 34 years of age:</i>		
Total.....	1, 102, 384....	7. 3
White.....	702, 962....	5. 2
Negro.....	380, 742....	24. 4
<i>35 to 44 years of age:</i>		
Total.....	940, 510....	8. 1
White.....	569, 403....	5. 4
Negro.....	152, 132....	27. 7
<i>45 to 64 years of age:</i>		
Total.....	1, 436, 907....	10. 7
White.....	821, 957....	6. 7
Negro.....	584, 514....	52. 7
<i>65 years of age and over:</i>		
Total.....	573, 799....	14. 5
White.....	342, 420....	9. 4
Negro.....	219, 255....	74. 5

¹ The proportion of illiterates among males 15 to 19 years of age was nearly 50 per cent greater than that among females of the same age.

The census reports show that in 1910 there were 2,273,603 illiterate males of voting age, that is, 21 years of age and over, of whom 617,733 were native-born whites, 788,631 foreign-born whites, and 819,135 negroes. The per cent of illiteracy of the total male population of voting age was 8.4; of the native-born white men, 4.1; of the foreign-born white men, 11.9; of the negroes, 33.7. The total number of illiterate men of voting age in the entire country was greater than the total number of men of voting age in the States of Kentucky, Tennessee, Alabama, Mississippi, Delaware, and the District of Columbia. In some States, and in many counties, the illiterate voters hold the balance of power in any closely contested election.

The problem of adult illiteracy is no longer one of race or of section. In 1910 the total number of white illiterates was greater by 956,902 than the total of negro illiterates, and the number of illiterate white men of voting age was greater by 585,229 than that of illiterate negroes of voting age. Massachusetts had 7,469 more illiterate men of voting age than Arkansas; Michigan, 2,663 more than West Virginia; Maryland, 2,352 more than Florida; Ohio, more than twice as many as New Mexico and Arizona combined; Pennsylvania, 5,689 more than Tennessee and Kentucky combined.

Boston had 24,468 illiterates over 10 years of age; Baltimore, 20,325; Pittsburgh, 26,627; New Orleans, 18,987; Fall River, 12,276; Birmingham, 11,026; Providence, 14,236; Nashville, 7,947; Washington City, 13,812; Memphis, 8,855.

The per cent of illiterates in the population over 10 years of age was, in New Bedford, Mass., 12.1; in Dallas, Tex., 4; in Lawrence, Mass., 13.2; in Wheeling, W. Va., 3.2; in Amsterdam, N. Y., 10.3; in Little Rock, Ark., 6.5; in Passaic, N. J., 15.8; in Augusta, Ga., 10.9; in Green Bay, Wis., 5.7; in Paducah, Ky., 1.8; in Woonsocket, R. I., 9.1; in Dubuque, Iowa, 0.9; in Bayonne, N. J., 9.1; in Knoxville, Tenn., 6.5; in Utica, N. Y., 8.2; in Roanoke, Va., 6.9.

These figures indicate that, if all classes of population are considered, no section can claim even approximate freedom from adult illiteracy.

The tables following show: (1) Number of illiterates in 1910 who were 10 years of age and over; (2) illiterate males 21 years of age and over in 1910; (3) per cent of illiteracy in cities having 100,000 population and over in the United States, 1910; (4) per cent of illiteracy in cities having 25,000 to 100,000 population in the United States, 1910.

Number of illiterates in 1910 who were 10 years of age and over.

States.	All classes.	Native whites.	Foreign-born whites.	Negroes.
Alabama.....	352,710	84,768	2,063	265,628
Arizona.....	32,953	3,776	13,758	122
Arkansas.....	142,964	55,025	1,406	86,308
California.....	74,902	7,509	50,292	1,329
Colorado.....	23,780	8,133	13,897	856
Connecticut.....	53,665	3,583	40,302	792
Delaware.....	13,240	3,525	3,359	6,345
District of Columbia.....	13,812	960	1,944	10,814
Florida.....	77,816	14,871	3,390	59,508
Georgia.....	389,775	80,203	875	308,630
Idaho.....	5,453	707	2,742	37
Illinois.....	168,294	40,486	117,751	9,713
Indiana.....	66,213	40,955	18,300	6,959
Iowa.....	29,889	11,541	16,894	1,272
Kansas.....	28,968	9,472	13,787	5,341
Kentucky.....	208,064	146,797	3,300	57,900
Louisiana.....	352,179	85,359	12,065	254,148
Maine.....	24,554	9,824	14,394	93
Maryland.....	73,397	18,962	12,047	42,389
Massachusetts.....	141,541	9,163	129,412	2,564
Michigan.....	74,800	17,846	54,113	826
Minnesota.....	49,336	5,838	40,627	215
Mississippi.....	290,235	28,699	1,364	259,438
Missouri.....	111,116	65,242	22,631	23,002
Montana.....	14,457	736	8,445	114
Nebraska.....	18,009	4,278	12,264	482
Nevada.....	4,702	187	1,344	26
New Hampshire.....	16,386	2,839	13,485	51
New Jersey.....	113,502	12,253	93,551	7,405
New Mexico.....	48,697	30,338	6,580	191
New York.....	406,020	36,318	362,025	5,788
North Carolina.....	291,497	132,189	477	156,303
North Dakota.....	13,070	1,413	9,474	26
Ohio.....	124,774	47,310	66,887	10,460
Oklahoma.....	67,567	33,569	3,828	17,858
Oregon.....	10,504	1,841	6,120	46
Pennsylvania.....	354,290	59,680	279,668	14,638
Rhode Island.....	33,854	3,253	29,781	752
South Carolina.....	276,980	50,245	399	226,242
South Dakota.....	12,750	1,239	4,896	38
Tennessee.....	221,071	120,966	1,488	98,541
Texas.....	282,904	90,591	67,295	124,618
Utah.....	6,821	832	3,636	49
Vermont.....	10,806	4,495	6,239	69
Virginia.....	232,911	81,457	2,368	148,950
Washington.....	18,416	1,836	11,233	239
West Virginia.....	74,866	51,407	13,075	10,347
Wisconsin.....	57,769	11,468	43,662	113
Wyoming.....	3,874	298	2,548	102
United States.....	5,516,163	1,534,272	1,650,361	2,227,731

Illiterate males 21 years of age and over in 1910.

States.	All classes.	Native whites.	Foreign-born whites.	Negroes.
Alabama.....	124,494	30,633	1,028	92,744
Arizona.....	14,463	1,297	7,447	64
Arkansas.....	53,440	20,728	661	32,013
California.....	42,787	3,175	28,921	556
Colorado.....	11,943	2,036	7,468	373
Connecticut.....	23,562	1,637	21,532	314
Delaware.....	6,272	1,740	1,602	2,829
District of Columbia.....	5,082	301	1,810	3,801
Florida.....	29,886	5,189	1,439	23,219
Georgia.....	141,541	30,085	1,376	111,037
Idaho.....	3,416	30,353	2,036	16
Illinois.....	79,423	18,863	55,907	4,349
Indiana.....	33,583	19,594	10,602	3,312
Iowa.....	14,204	5,675	7,779	626
Kansas.....	14,716	4,647	7,497	2,380
Kentucky.....	87,516	60,147	1,382	25,958
Louisiana.....	118,716	29,026	5,211	84,176
Maine.....	13,070	5,222	7,676	55
Maryland.....	31,438	8,620	5,057	17,484
Massachusetts.....	61,909	3,872	56,504	1,186
Michigan.....	38,703	9,398	28,034	397
Minnesota.....	23,603	2,489	19,947	123
Mississippi.....	107,843	11,270	593	95,702
Missouri.....	61,284	30,217	10,848	10,068
Montana.....	8,812	394	5,885	75
Nebraska.....	8,545	2,044	5,886	231
Nevada.....	2,399	95	968	15
New Hampshire.....	5,413	1,468	6,909	29
New Jersey.....	51,086	5,423	42,347	3,052
New Mexico.....	16,634	8,680	3,630	88
New York.....	170,563	17,826	148,703	2,296
North Carolina.....	107,563	40,710	274	56,699
North Dakota.....	5,467	493	4,029	16
Ohio.....	62,998	22,567	35,160	5,169
Oklahoma.....	23,707	14,824	2,188	7,306
Oregon.....	6,460	914	4,083	24
Pennsylvania.....	179,982	23,625	149,592	6,479
Rhode Island.....	14,456	1,280	12,793	345
South Carolina.....	90,707	17,599	206	72,897
South Dakota.....	5,550	604	2,323	24
Tennessee.....	86,677	47,743	628	38,273
Texas.....	109,328	31,196	28,191	49,999
Utah.....	3,477	372	1,959	26
Vermont.....	6,039	2,661	3,439	33
Virginia.....	92,917	33,690	1,297	57,967
Washington.....	10,580	840	6,993	121
West Virginia.....	35,040	21,022	8,528	5,487
Wisconsin.....	27,038	5,432	20,433	58
Wyoming.....	2,594	157	1,810	50
United States.....	2,273,603	617,733	788,631	819,135

Per cent of illiteracy in cities having 100,000 population and over in the United States, 1910.

Cities.	In population 10 years of age and over.				Males 21 years of age and over.			
	All classes.	Native white.	Total white.	Negro.	All classes.	Native white.	Total white.	Negro.
Albany, N. Y.	3.2	0.4	3.2	4.2	3.8	0.4	3.8	5.0
Atlanta, Ga.	8.6	2.0	2.2	20.9	8.1	1.6	1.9	21.7
Baltimore, Md.	4.4	0.6	2.8	13.2	4.7	0.6	3.0	13.4
Birmingham, Ala.	10.4	1.2	2.4	22.1	10.7	0.9	2.3	23.0
Boston, Mass.	4.4	0.2	4.4	3.5	4.5	0.2	4.5	2.6
Bridgeport, Conn.	5.4	0.3	5.4	5.2	5.5	0.3	5.5	4.9
Buffalo, N. Y.	3.7	0.4	3.7	4.1	4.4	0.5	4.4	5.4
Cambridge, Mass.	3.0	0.2	2.9	5.6	3.2	0.1	3.1	5.3
Chicago, Ill.	4.5	0.2	4.5	4.0	5.1	0.2	5.1	3.1
Cincinnati, Ohio.	3.1	0.8	2.4	14.3	3.5	0.8	2.6	16.0
Cleveland, Ohio.	4.6	0.2	4.6	4.1	5.3	0.2	5.3	3.8
Columbus, Ohio.	2.9	1.2	2.4	8.7	3.4	1.0	2.9	9.1
Dayton, Ohio.	2.3	0.5	2.0	9.5	2.8	0.6	2.4	10.9
Denver, Colo.	2.1	0.3	2.0	6.0	2.2	0.3	2.0	5.0
Detroit, Mich.	5.0	0.4	5.0	3.5	6.5	0.4	6.5	3.2
Fall River, Mass.	13.2	1.7	13.2	8.1	15.6	2.1	15.7	4.5
Grand Rapids, Mich.	2.5	0.2	2.5	4.8	2.7	0.2	2.7	3.4
Indianapolis, Ind.	3.0	0.9	2.0	12.4	3.5	0.9	2.5	13.1
Jersey City, N. J.	5.6	0.4	5.6	4.9	6.8	0.3	6.9	3.6
Kansas City, Mo.	2.3	0.4	1.5	9.6	2.3	0.4	1.6	8.6
Los Angeles, Cal.	1.9	0.2	1.7	6.0	2.0	0.2	1.8	4.5
Louisville, Ky.	5.3	1.2	2.1	18.7	5.9	1.4	2.3	20.3
Lowell, Mass.	6.0	0.5	6.0	2.7	7.2	0.6	7.3	0.0
Memphis, Tenn.	8.0	0.5	1.4	17.6	7.1	0.3	1.2	16.4
Milwaukee, Wis.	3.6	0.2	3.6	2.9	4.6	0.3	4.6	2.3
Minneapolis, Minn.	2.4	0.2	2.4	2.9	2.6	0.2	2.6	3.2
Nashville, Tenn.	8.8	1.6	1.9	22.0	9.4	1.9	2.1	25.3
New Haven, Conn.	7.0	0.3	7.0	4.5	7.5	0.2	7.6	4.0
New Orleans, La.	6.9	1.1	2.7	18.3	6.5	0.9	2.6	17.1
New York, N. Y.	6.7	0.3	6.7	3.6	6.4	0.3	6.5	2.9
Newark, N. J.	6.0	0.5	5.9	7.5	6.0	0.5	6.0	7.2
Oakland, Cal.	3.0	0.4	2.8	3.3	3.5	0.4	3.3	2.7
Omaha, Nebr.	2.7	0.2	2.5	6.3	3.3	0.3	3.2	5.8
Paterson, N. J.	6.9	0.8	6.8	11.3	7.0	0.8	6.9	11.0
Philadelphia, Pa.	4.6	0.5	4.4	7.8	4.7	0.6	4.5	7.5
Pittsburgh, Pa.	6.2	0.4	6.2	6.6	8.5	0.5	8.6	7.1
Portland, Oreg.	1.2	0.1	1.1	1.9	1.3	0.1	1.2	1.3
Providence, R. I.	7.7	0.7	7.7	9.7	8.3	0.7	8.2	10.6
Richmond, Va.	8.2	1.2	1.5	19.6	8.6	1.4	1.7	20.8
Rochester, N. Y.	3.8	0.3	3.8	1.4	4.5	0.3	4.5	2.0
St. Louis, Mo.	3.7	0.6	3.0	12.4	4.1	0.6	3.5	11.4
St. Paul, Minn.	2.1	0.2	2.1	2.3	2.2	0.2	2.2	1.7
San Francisco, Cal.	2.1	0.2	1.9	5.1	2.0	0.2	1.7	5.2
Scranton, Pa.	8.9	0.9	8.9	3.3	12.2	1.1	12.2	2.3
Seattle, Wash.	1.1	0.1	1.0	2.7	1.4	0.0	1.3	2.0
Spokane, Wash.	1.3	0.1	1.1	2.4	1.8	0.0	1.5	1.3
Syracuse, N. Y.	4.9	0.5	4.9	5.1	6.3	0.5	6.3	6.2
Toledo, Ohio.	2.8	0.7	2.7	4.3	3.4	1.0	3.4	4.2
Washington, D. C.	4.9	0.5	1.5	13.5	4.9	0.6	1.6	13.8
Worcester, Mass.	5.0	0.4	5.1	3.5	6.0	0.4	6.0	2.3

Per cent of illiteracy in cities having 25,000 to 100,000 population in the United States, 1910.

Cities.	In population 10 years of age and over.				Males 21 years of age and over.			
	All classes.	Native white.	Total white.	Negro.	All classes.	Native white.	Total white.	Negro.
Alabama:								
Mobile.....	12.3	0.8	1.2	25.9	11.6	0.5	1.1	25.1
Montgomery.....	13.4	0.9	1.1	25.1	11.7	0.6	0.7	24.6
Arkansas:								
Little Rock.....	6.5	1.9	2.0	15.8	6.3	1.9	2.0	15.7
California:								
Berkeley.....	1.4	0.1	1.2	3.8	2.0	0.1	1.8	.....
Pasadena.....	1.2	0.4	0.9	6.0	1.7	0.5	1.2	4.0
Sacramento.....	1.4	0.2	1.2	5.5	1.4	0.1	1.1	4.3
San Diego.....	1.6	0.3	1.4	9.6	1.8	0.3	1.7	9.9
San Jose.....	3.2	0.4	3.0	2.5	3.8	0.5	3.3	.....
Colorado:								
Colorado Springs.....	0.9	0.2	0.6	6.9	1.0	0.3	0.8	4.7
Pueblo.....	5.6	0.9	5.4	10.6	7.1	1.2	6.9	12.2
Connecticut:								
Hartford.....	5.0	0.3	5.0	4.8	5.0	0.3	5.0	4.6
Meriden town.....	4.2	0.3	4.2	2.7	4.6	0.4	3.9	.....
New Britain.....	9.2	0.3	9.3	.....	9.1	0.5	9.1	.....
Norwich town.....	6.6	0.6	6.4	12.3	7.2	0.7	6.9	15.2
Stamford town.....	6.0	0.4	6.0	4.5	5.8	0.5	5.8	.....
Waterbury.....	6.2	0.3	6.2	5.2	7.2	0.4	7.2	4.0
Delaware:								
Wilmington.....	6.6	0.6	5.1	18.7	8.0	0.7	6.4	20.9
Florida:								
Jacksonville.....	7.9	0.4	0.7	14.7	7.0	0.2	0.5	13.6
Tampa.....	7.5	1.2	6.2	11.5	5.5	0.4	3.9	10.3
Georgia:								
Augusta.....	10.9	3.3	3.3	19.9	9.9	3.2	3.2	18.9
Macon.....	10.3	2.3	2.6	19.6	9.9	1.8	2.1	20.1
Savannah.....	14.6	0.9	1.6	26.5	12.8	0.6	1.4	23.9
Illinois:								
Aurora.....	2.0	0.3	1.9	8.8	2.5	0.3	2.4	11.0
Bloomington.....	1.2	0.4	0.9	8.8	1.3	0.6	1.1	7.7
Danville.....	2.4	1.3	1.7	13.5	2.7	1.6	1.9	12.2
Decatur.....	1.3	0.6	1.1	8.6	1.5	0.7	1.2	10.8
East St. Louis.....	5.5	0.7	4.5	14.6	7.1	0.6	6.1	14.9
Elgin.....	2.8	0.4	2.7	16.3	3.1	0.5	2.9	.....
Joliet.....	5.8	0.3	5.8	10.6	8.4	0.5	8.3	11.8
Peoria.....	1.3	0.4	1.1	7.2	1.2	0.4	1.0	7.3
Quincy.....	1.8	0.6	1.2	13.7	1.7	0.7	1.0	14.6
Rockford.....	2.0	0.1	2.0	5.1	2.4	0.1	2.4	.....
Springfield.....	4.7	0.9	4.1	13.9	5.6	1.1	5.0	13.1
Indiana:								
Evansville.....	3.4	1.4	1.8	18.7	3.9	1.4	1.7	21.9
Fort Wayne.....	2.2	1.6	2.1	7.0	2.0	1.3	2.0	5.6
South Bend.....	3.3	0.6	3.3	3.5	3.7	0.7	3.6	5.3
Terre Haute.....	1.7	1.0	1.4	6.9	1.8	1.0	1.5	7.2
Iowa:								
Cedar Rapids.....	1.4	0.4	1.4	6.5	1.6	0.6	1.6	.....
Clinton.....	1.8	0.4	1.7	8.9	2.2	0.4	2.1	7.7
Council Bluffs.....	2.8	0.5	2.2	12.4	4.7	0.7	3.5	15.0
Davenport.....	1.1	0.2	0.9	11.4	1.2	0.3	1.1	10.3
Des Moines.....	2.0	0.6	1.7	8.8	2.2	0.8	1.9	9.2
Dubuque.....	0.9	0.3	0.9	.....	0.8	0.3	0.8	.....
St. Louis City.....	1.7	0.2	1.7	0.4	2.2	0.2	2.3	0.8
Waterloo.....	1.4	0.3	1.4	.....	1.9	0.4	1.8	.....
Kansas:								
Kansas City.....	3.9	0.5	3.1	10.0	4.6	0.6	3.9	9.4
Topeka.....	2.6	0.4	1.7	10.4	2.9	0.5	2.0	11.3
Wichita.....	1.5	0.5	1.2	7.3	2.1	0.7	1.8	8.4
Kentucky:								
Covington.....	2.5	0.9	1.3	20.7	2.8	1.2	1.5	22.6
Lexington.....	12.5	4.8	5.0	28.6	14.9	7.0	6.9	32.9
Newport.....	1.8	0.8	1.6	12.2	1.9	0.9	1.6	14.4
Louisiana:								
Shreveport.....	15.8	0.6	2.0	29.7	12.9	0.5	1.9	27.3
Maine:								
Lewiston.....	8.4	2.0	8.4	.....	11.0	2.4	10.9	.....
Portland.....	2.8	0.2	2.8	2.9	3.2	0.3	3.2	.....
Massachusetts:								
Brockton.....	2.6	0.2	2.6	3.8	3.0	0.3	3.0	4.0
Brookline town.....	1.0	0.1	1.0	0.5	1.0	0.2	1.0	.....
Chelsea.....	8.1	0.4	8.1	4.4	7.8	0.7	7.8	.....
Chicopee.....	7.0	0.6	7.0	.....	8.5	0.6	8.5	.....
Everett.....	1.6	0.2	1.6	2.7	1.9	0.2	1.8	4.4
Fitchburg.....	6.3	0.7	6.3	.....	7.6	0.9	7.6	.....

Per cent of illiteracy in cities having 25,000 to 100,000 population in the United States, 1910—Continued.

Cities.	In population 10 years of age and over.				Males 21 years of age and over.			
	All classes.	Native white.	Total white.	Negro.	All classes.	Native white.	Total white.	Negro.
Massachusetts—Continued.								
Haverhill.....	4.0	0.3	4.0	4.8	4.8	0.4	4.8	5.0
Holyoke.....	6.8	0.8	6.8	.....	8.4	1.3	8.4	.....
Lawrence.....	13.2	0.7	13.1	27.7	14.8	0.8	14.7	43.0
Lynn.....	3.0	0.2	3.0	6.2	3.4	0.3	3.4	6.9
Malden.....	2.2	0.1	2.1	7.9	1.8	0.1	1.7	7.6
New Bedford.....	12.1	1.1	11.8	23.7	14.5	1.5	14.2	23.2
Newton.....	3.7	0.1	3.7	8.9	5.3	0.1	5.2	10.0
Pittsfield.....	3.6	0.4	3.6	3.1	4.4	0.3	4.4	3.9
Quincy.....	2.4	0.3	2.4	.....	2.9	0.3	2.1	.....
Salem.....	6.0	0.5	5.9	2.8	8.0	0.5	8.0	.....
Somerville.....	1.9	0.1	1.9	6.6	2.4	0.2	2.3	.....
Springfield.....	4.5	0.5	4.4	4.6	5.2	0.5	5.2	5.3
Taunton.....	9.4	1.1	9.2	33.3	12.4	1.3	12.1	.....
Waltham.....	3.3	1.4	2.4	.....	3.5	1.3	3.5	.....
Michigan:								
Battle Creek.....	0.6	0.3	0.6	4.1	0.9	0.2	0.7	6.1
Bay City.....	3.6	1.3	3.6	3.7	4.5	1.9	4.5	.....
Flint.....	1.2	0.3	1.2	0.9	1.6	0.3	1.6	.....
Jackson.....	2.1	0.3	2.0	8.7	3.0	0.4	2.8	9.0
Kalamazoo.....	1.8	0.7	1.7	5.0	2.1	1.1	2.1	2.4
Lansing.....	1.5	0.3	1.5	7.0	1.9	0.4	1.9	4.4
Saginaw.....	3.1	0.6	3.0	5.7	3.6	0.9	3.6	6.3
Minnesota:								
Duluth.....	2.7	0.3	2.7	0.8	3.2	0.4	3.2	1.0
Missouri:								
Joplin.....	1.7	1.4	1.4	11.7	1.6	1.4	1.4	9.2
St. Joseph.....	2.4	0.9	1.7	12.9	2.8	1.1	2.1	13.8
Springfield.....	2.4	1.6	1.6	14.9	2.5	1.7	1.7	16.6
Montana:								
Butte.....	1.7	0.2	1.6	4.5	1.7	0.2	1.5	2.6
Nebraska:								
Lincoln.....	3.6	0.3	3.6	5.6	3.3	0.3	3.3	4.0
South Omaha.....	5.3	0.3	5.3	7.6	7.3	0.3	7.3	8.6
New Hampshire:								
Manchester.....	5.9	0.8	5.9	.....	7.3	0.9	7.3	.....
Nashua.....	6.8	0.7	6.8	.....	8.0	0.9	8.0	.....
New Jersey:								
Atlantic City.....	4.5	0.6	3.6	7.6	4.8	0.7	4.2	6.3
Bayonne.....	9.1	0.4	9.1	7.8	11.3	0.4	11.3	7.8
Camden.....	4.4	0.6	3.7	14.0	5.1	0.7	4.4	15.0
East Orange.....	1.3	0.2	0.9	7.4	1.1	0.2	0.8	7.1
Elizabeth.....	6.9	0.5	6.8	8.4	8.6	0.6	8.5	9.8
Hoboken.....	4.5	0.4	4.7	0.9	5.0	0.3	5.0	.....
Orange.....	6.6	0.5	6.5	7.6	7.7	0.4	7.9	7.1
Pasaic.....	15.8	0.7	15.9	11.9	15.0	0.8	15.0	12.8
Perth Amboy.....	9.9	0.5	9.9	7.0	11.6	0.5	11.6	.....
Trenton.....	5.9	1.0	5.8	10.7	7.0	1.3	6.8	11.7
West Hoboken town.....	2.4	0.2	2.4	.....	2.2	0.2	2.1	.....
New York:								
Amsterdam.....	10.3	0.4	10.3	.....	12.3	0.5	12.3	.....
Auburn.....	4.5	0.3	4.5	2.9	5.1	0.4	5.2	4.2
Binghamton.....	2.8	0.4	2.8	3.7	2.8	0.7	2.8	2.9
Elmira.....	2.5	0.3	2.4	9.5	2.9	0.4	2.7	14.2
Jamestown.....	2.6	0.2	2.6	.....	3.2	0.3	3.2	.....
Kingston.....	4.3	0.8	4.2	9.0	5.3	1.1	5.2	10.7
Mount Vernon.....	4.1	0.1	4.0	6.1	4.9	0.2	4.9	5.1
New Rochelle.....	6.5	0.2	6.3	9.3	7.9	0.3	7.8	9.2
Newburgh.....	3.0	0.3	2.9	3.6	3.5	0.3	3.5	3.2
Niagara Falls.....	5.8	0.2	5.7	10.5	8.0	0.2	7.9	9.3
Poughkeepsie.....	2.8	0.5	2.8	3.2	3.0	0.4	3.1	1.4
Schenectady.....	5.4	0.4	5.4	3.3	6.7	0.3	6.7	.....
Troy.....	2.0	0.4	1.9	4.5	2.1	0.4	2.1	3.1
Utica.....	8.2	0.5	8.2	7.5	9.5	0.6	9.5	7.4
Watertown.....	4.6	1.0	4.6	.....	6.9	1.3	6.9	.....
Yonkers.....	8.4	0.3	8.4	7.0	10.6	0.4	10.6	7.4
North Carolina:								
Charlotte.....	10.1	2.3	2.3	24.4	9.4	1.8	1.8	26.2
Wilmington.....	14.9	3.0	3.1	28.2	13.1	2.5	2.7	27.0
Ohio:								
Akron.....	3.0	0.4	2.9	8.9	3.9	0.3	3.8	11.8
Canton.....	3.4	0.4	3.4	2.0	5.1	0.3	5.1	2.3
Hamilton.....	1.3	0.7	1.1	10.2	1.7	0.9	1.4	9.8
Lima.....	1.5	0.9	1.3	5.6	2.0	1.3	1.8	7.0
Lorain.....	5.6	0.2	5.6	2.3	7.0	0.2	7.0	3.3
Newark.....	1.3	0.5	1.2	7.1	1.6	0.5	1.5	7.7

Per cent of illiteracy in cities having 25,000 to 100,000 population in the United States, 1910—Continued.

Cities.	In population 10 years of age and over.				Males 21 years of age and over.			
	All classes.	Native white.	Total white.	Negro.	All classes.	Native white.	Total white.	Negro.
Ohio—Continued.								
Springfield.....	2.1	0.5	1.4	8.5	2.6	0.6	1.7	9.6
Youngstown.....	7.1	0.4	7.2	5.8	9.0	0.3	9.1	6.6
Zanesville.....	2.2	0.9	1.8	8.7	2.7	1.1	2.3	10.8
Oklahoma:								
Muskogee.....	4.2	0.6	0.7	12.1	3.9	0.4	0.5	12.6
Oklahoma City.....	1.4	0.3	0.8	6.7	1.5	0.2	1.0	6.2
Pennsylvania:								
Allentown.....	3.0	0.9	3.0	2.6	2.5	0.6	2.5	.....
Altoona.....	3.1	0.8	3.1	3.8	3.9	0.6	3.9	2.4
Chester.....	6.6	0.7	5.6	13.8	9.1	0.7	8.2	14.9
Easton.....	2.6	0.8	1.8	3.8	2.4	0.5	2.4	.....
Erie.....	3.7	0.4	3.7	6.0	5.2	0.7	5.2	8.2
Harrisburg.....	2.5	0.9	1.8	11.5	2.9	0.9	2.1	12.8
Hazleton.....	10.0	1.6	10.0	.....	11.3	1.4	11.3	.....
Johnstown.....	9.0	1.0	9.0	5.0	13.3	1.4	13.4	3.8
Lancaster.....	1.7	1.0	1.5	13.1	2.0	1.2	1.8	13.5
McKeesport.....	4.1	0.4	4.0	6.7	4.9	0.6	4.8	7.3
New Castle.....	6.4	0.5	6.3	10.8	8.9	0.6	8.7	14.8
Norristown borough.....	8.8	4.0	8.5	15.8	9.7	4.4	9.3	19.9
Reading.....	3.0	1.1	3.0	3.4	3.7	1.0	3.7	3.7
Shenandoah borough.....	23.7	2.5	23.7	.....	28.6	3.7	28.6	.....
Wilkes-Barre.....	6.9	0.8	6.9	8.1	8.6	1.0	8.6	7.7
Williamsport.....	1.4	0.6	1.2	7.0	1.8	0.7	1.6	7.3
York.....	2.7	2.1	2.5	11.6	3.0	2.2	2.8	11.5
Rhode Island:								
Newport.....	2.9	0.3	2.6	5.8	3.5	0.3	3.3	6.7
Pawtucket.....	5.4	1.1	5.4	5.8	5.6	1.2	5.8	.....
Warwick town.....	10.6	2.8	10.6	9.0	12.6	3.2	12.6	.....
Woonsocket.....	9.1	2.3	9.1	.....	11.9	3.3	11.9	.....
South Carolina:								
Charleston.....	15.3	0.9	1.5	27.9	14.0	0.9	1.7	26.8
Columbia.....	17.4	5.5	5.6	32.2	16.2	5.2	5.3	32.3
Tennessee:								
Chattanooga.....	9.9	2.3	2.5	20.7	10.1	2.1	2.2	21.9
Knoxville.....	6.5	4.3	4.3	14.2	6.0	3.4	3.4	15.2
Texas:								
Austin.....	7.8	2.6	4.2	18.8	8.7	3.6	5.0	21.3
Dallas.....	4.0	0.6	1.1	15.4	3.8	0.5	1.1	15.1
El Paso.....	13.3	3.1	13.4	9.5	11.4	2.3	11.5	8.8
Fort Worth.....	3.8	0.7	2.0	12.0	4.4	0.6	2.7	12.0
Galveston.....	5.1	0.9	2.8	12.2	5.5	0.9	3.5	12.0
Houston.....	6.4	0.7	1.9	16.4	5.9	0.6	1.8	16.4
San Antonio.....	10.1	4.3	9.7	13.2	9.4	3.6	8.9	13.0
Waco.....	5.1	0.6	1.4	16.8	5.2	0.4	1.2	18.5
Utah:								
Ordgen.....	1.5	0.3	1.3	2.7	1.9	0.3	1.6	0.9
Salt Lake City.....	1.6	0.2	1.3	4.6	2.0	0.3	1.5	4.3
Virginia:								
Lynchburg.....	9.3	1.1	1.4	25.3	9.3	1.2	1.8	28.2
Norfolk.....	9.0	1.2	2.3	19.7	8.6	1.1	2.5	18.6
Portsmouth.....	9.8	1.0	1.7	24.5	8.5	1.0	1.6	23.1
Roanoke.....	6.9	2.0	2.2	22.7	7.2	2.3	2.4	25.8
Washington:								
Tacoma.....	1.8	0.1	1.7	3.6	2.1	0.2	1.9	3.1
West Virginia:								
Huntington.....	5.1	4.5	4.5	13.3	5.6	4.7	4.7	14.8
Wheeling.....	3.2	0.9	3.0	9.0	4.0	1.3	3.8	8.0
Wisconsin:								
Green Bay.....	5.7	2.8	5.7	.....	7.6	4.3	7.6	.....
La Crosse.....	2.5	0.3	3.0	.....	2.9	0.4	2.9	.....
Madison.....	1.6	0.1	1.5	5.2	2.2	0.1	2.0	.....
Oshkosh.....	2.7	0.3	2.7	.....	3.4	0.4	3.4	.....
Racine.....	3.6	0.2	3.6	3.9	4.7	0.1	4.7	.....
Sheboygan.....	3.2	0.3	3.2	.....	3.9	0.2	3.9	.....
Superior.....	2.7	0.2	2.6	1.2	3.1	0.2	3.1	.....

Number of illiterates per thousand in the total population 10 years of age and over in 1910.

1. Iowa—17.	
2. Nebraska—19.	
3. Oregon—19.	
4. Washington—20.	
5. Kansas—22.	
6. Idaho—22.	
7. Utah—25.	
8. South Dakota—29.	
9. Minnesota—30.	
10. Indiana—31.	
11. North Dakota—31.	
12. Ohio—32.	
13. Wisconsin—32.	
14. Michigan—33.	
15. Wyoming—33.	
16. Illinois—37.	
17. California—37.	
18. Colorado—37.	
19. Vermont—37.	
20. Maine—41.	
21. Missouri—43.	
22. New Hampshire—46.	
23. Montana—48.	
24. District of Columbia—49.	
25. Massachusetts—52.	
26. New York—55.	
27. New Jersey—56.	
28. Oklahoma—56.	
29. Pennsylvania—59.	
30. Connecticut—60.	
31. Nevada—67.	
32. Maryland—72.	
33. Rhode Island—77.	
34. Delaware—81.	
35. West Virginia—83.	
36. Texas—99.	
37. Kentucky—121.	
38. Arkansas—126.	
39. Tennessee—136.	
40. Florida—138.	
41. Virginia—152.	
42. North Carolina—185.	
43. New Mexico—202.	
44. Georgia—207.	
45. Arizona—209.	
46. Mississippi—224.	
47. Alabama—229.	
48. South Carolina—257.	
49. Louisiana—290.	

Number of illiterates per thousand of the total white population 10 years of age and over in 1910.

1. Washington—14.
2. South Dakota—14.
3. Idaho—14.
4. Oregon—15.
5. District of Columbia—15.
6. Iowa—16.
7. Utah—17.
8. Kansas—18.
9. Nebraska—18.
10. Nevada—24.
11. Wyoming—25.
12. North Dakota—26.
13. Indiana—28.
14. Minnesota—29.
15. Ohio—30.
16. California—30.
17. Wisconsin—30.
18. Michigan—32.
19. Montana—32.
20. Colorado—35.
21. Illinois—36.
22. Missouri—36.
23. Oklahoma—36.
24. Maryland—37.
25. Vermont—37.
26. Maine—40.
27. New Hampshire—46.
28. Delaware—50.
29. Massachusetts—51.
30. Mississippi—53.
31. New Jersey—54.
32. New York—55.
33. Florida—55.
34. Pennsylvania—58.
35. Connecticut—59.
36. Texas—67.
37. Arkansas—70.
38. West Virginia—76.
39. Rhode Island—77.
40. Georgia—78.
41. Virginia—81.
42. Tennessee—97.
43. Kentucky—99.
44. Alabama—99.
45. South Carolina—103.
46. North Carolina—123.
47. Arizona—131.
48. Louisiana—142.
49. New Mexico—164.

Number of illiterates per thousand of the native-born white population 10 years of age and over in 1910.

<u>1.</u>	<u>Washington—3.</u>
<u>2.</u>	<u>Idaho—3.</u>
<u>3.</u>	<u>Wyoming—3.</u>
<u>4.</u>	<u>Oregon—4.</u>
<u>5.</u>	<u>South Dakota—4.</u>
<u>6.</u>	<u>Utah—4.</u>
<u>7.</u>	<u>Montana—4.</u>
<u>8.</u>	<u>Nevada—4.</u>
<u>9.</u>	<u>Massachusetts—5.</u>
<u>10.</u>	<u>California—5.</u>
<u>11.</u>	<u>Minnesota—5.</u>
<u>12.</u>	<u>North Dakota, 5.</u>
<u>13.</u>	<u>District of Columbia—5.</u>
<u>14.</u>	<u>Nebraska—6.</u>
<u>15.</u>	<u>Connecticut—6.</u>
<u>16.</u>	<u>New York—6.</u>
<u>17.</u>	<u>Iowa—8.</u>
<u>18.</u>	<u>Kansas—8.</u>
<u>19.</u>	<u>Wisconsin—9.</u>
<u>20.</u>	<u>New Jersey—9.</u>
<u>21.</u>	<u>Michigan—11.</u>
<u>22.</u>	<u>New Hampshire—11.</u>
<u>23.</u>	<u>Pennsylvania—13.</u>
<u>24.</u>	<u>Illinois—13.</u>
<u>25.</u>	<u>Rhode Island—13.</u>
<u>26.</u>	<u>Ohio—15.</u>
<u>27.</u>	<u>Colorado—16.</u>
<u>28.</u>	<u>Vermont—19.</u>
<u>29.</u>	<u>Maine—20.</u>
<u>30.</u>	<u>Indiana—21.</u>
<u>31.</u>	<u>Maryland—26.</u>
<u>32.</u>	<u>Missouri—29.</u>
<u>33.</u>	<u>Delaware—29.</u>
<u>34.</u>	<u>Oklahoma—33.</u>
<u>35.</u>	<u>Arizona—42.</u>
<u>36.</u>	<u>Texas—43.</u>
<u>37.</u>	<u>Florida—50.</u>
<u>38.</u>	<u>Mississippi—62.</u>
<u>39.</u>	<u>West Virginia—64.</u>
<u>40.</u>	<u>Arkansas—70.</u>
<u>41.</u>	<u>Georgia—78.</u>
<u>42.</u>	<u>Virginia—80.</u>
<u>43.</u>	<u>Tennessee—97.</u>
<u>44.</u>	<u>Alabama—99.</u>
<u>45.</u>	<u>Kentucky—100.</u>
<u>46.</u>	<u>South Carolina—108.</u>
<u>47.</u>	<u>North Carolina—123.</u>
<u>48.</u>	<u>Louisiana—134.</u>
<u>49.</u>	<u>New Mexico—149.</u>

Number of illiterates per thousand of the negro population 10 years of age and over in 1910.

1. Minnesota—34.	
2. Oregon—34.	
3. Washington—43.	
4. Wisconsin—45.	
5. Vermont—48.	
6. Utah—48.	
7. North Dakota—48.	
8. New York—50.	
9. Wyoming—50.	
10. South Dakota—55.	
11. Nevada—55.	
12. Michigan—57.	
13. Connecticut—63.	
14. Idaho—64.	
15. Montana—70.	
16. California—71.	
17. Nebraska—72.	
18. Arizona—72.	
19. Maine—80.	
20. Massachusetts—81.	
21. Colorado—86.	
22. Pennsylvania—91.	
23. Rhode Island—95.	
24. New Jersey—99.	
25. Iowa—103.	
26. Illinois—105.	
27. New Hampshire—106.	
28. Ohio—111.	
29. Kansas—120.	
30. District of Columbia—125.	
31. Indiana—137.	
32. New Mexico—142.	
33. Missouri—174.	
34. Oklahoma—177.	
35. West Virginia—203.	
36. Maryland—234.	
37. Texas—246.	
38. Florida—255.	
39. Delaware—256.	
40. Arkansas—264.	
41. Tennessee—273.	
42. Kentucky—276.	
43. Virginia—300.	
44. North Carolina—319.	
45. Mississippi—356.	
46. Georgia—365.	
47. South Carolina—387.	
48. Alabama—401.	
49. Louisiana—484.	

Number of illiterates per thousand of the total male population 21 years of age and over in 1910.

<u>1. Iowa—21.</u>	
<u>2. Washington—24.</u>	
<u>3. Nebraska—24.</u>	
<u>4. Oregon—25.</u>	
<u>5. Kansas—29.</u>	
<u>6. South Dakota—31.</u>	
<u>7. North Dakota—31.</u>	
<u>8. Idaho—31.</u>	
<u>9. Utah—33.</u>	
<u>10. Minnesota—37.</u>	
<u>11. Wisconsin—40.</u>	
<u>12. Indiana—41.</u>	
<u>13. Wyoming—41.</u>	
<u>14. Ohio—42.</u>	
<u>15. Colorado—42.</u>	
<u>16. Michigan—44.</u>	
<u>17. Illinois—46.</u>	
<u>18. California—46.</u>	
<u>19. District of Columbia—49.</u>	
<u>20. Missouri—53.</u>	
<u>21. Vermont—53.</u>	
<u>22. Maine—55.</u>	
<u>23. Montana—57.</u>	
<u>24. New York—60.</u>	
<u>25. Nevada—60.</u>	
<u>26. Massachusetts—61.</u>	
<u>27. New Hampshire—62.</u>	
<u>28. Oklahoma—64.</u>	
<u>29. New Jersey—66.</u>	
<u>30. Connecticut—68.</u>	
<u>31. Pennsylvania—78.</u>	
<u>32. Maryland—85.</u>	
<u>33. Rhode Island—88.</u>	
<u>34. Delaware—101.</u>	
<u>35. West Virginia—104.</u>	
<u>36. Texas—109.</u>	
<u>37. Arkansas—135.</u>	
<u>38. Florida—140.</u>	
<u>39. Kentucky—145.</u>	
<u>40. Tennessee—157.</u>	
<u>41. New Mexico—176.</u>	
<u>42. Virginia—177.</u>	
<u>43. Arizona—195.</u>	
<u>44. North Carolina—213.</u>	
<u>45. Georgia—228.</u>	
<u>46. Alabama—243.</u>	
<u>47. Mississippi—253.</u>	
<u>48. South Carolina—271.</u>	
<u>49. Louisiana—286.</u>	

Number of illiterates per thousand of the total white male population 21 years of age and over in 1910.

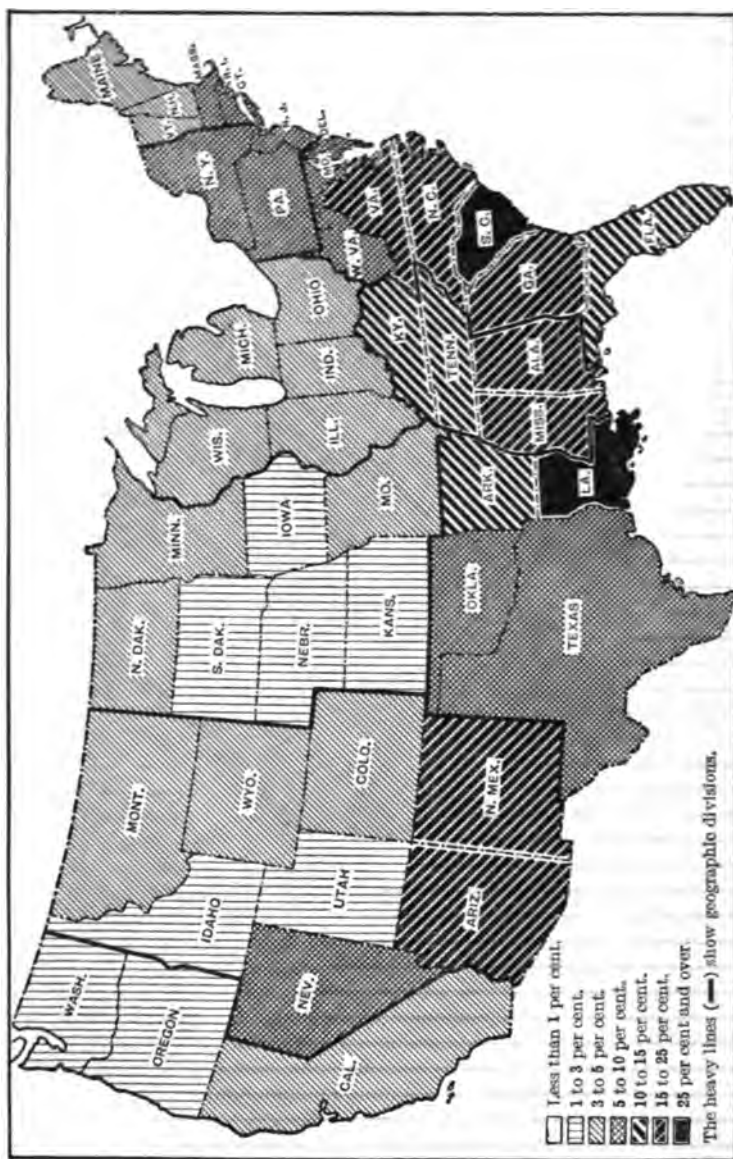
1. District of Columbia—16.	
2. South Dakota—17.	
3. Washington—19.	
4. Iowa—20.	
5. Oregon—20.	
6. Idaho—22.	
7. Nebraska—23.	
8. Utah—23.	
9. Kansas—26.	
10. North Dakota—26.	
11. Nevada—29.	
12. Wyoming—33.	
13. Minnesota—35.	
14. California—38.	
15. Indiana—38.	
16. Wisconsin—38.	
17. Colorado—39.	
18. Ohio—40.	
19. Montana—42.	
20. Michigan—43.	
21. Oklahoma—43.	
22. Illinois—44.	
23. Missouri—45.	
24. Maryland—45.	
25. Florida—53.	
26. Vermont—53.	
27. Maine—55.	
28. New York—60.	
29. Massachusetts—60.	
30. New Hampshire—61.	
31. Mississippi—62.	
32. New Jersey—64.	
33. Delaware—65.	
34. Connecticut—68.	
35. Texas—71.	
36. Arkansas—75.	
37. Pennsylvania—77.	
38. Georgia—86.	
39. Rhode Island—88.	
40. West Virginia—94.	
41. Virginia—96.	
42. Alabama—106.	
43. South Carolina—107.	
44. Tennessee—112.	
45. Kentucky—117.	
46. Arizona—134.	
47. New Mexico—139.	
48. North Carolina—140.	
49. Louisiana—143.	

Number of illiterates per thousand of the native-born white male population 21 years of age and over in 1910.

<u>1.</u>	<u>Washington—3.</u>
<u>2.</u>	<u>Montana—4.</u>
<u>3.</u>	<u>Idaho—4.</u>
<u>4.</u>	<u>Wyoming—4.</u>
<u>5.</u>	<u>Nevada—4.</u>
<u>6.</u>	<u>Oregon—5.</u>
<u>7.</u>	<u>Utah—5.</u>
<u>8.</u>	<u>North Dakota—5.</u>
<u>9.</u>	<u>South Dakota—5.</u>
<u>10.</u>	<u>California—6.</u>
<u>11.</u>	<u>District of Columbia—6.</u>
<u>12.</u>	<u>Massachusetts—7.</u>
<u>13.</u>	<u>Minnesota—7.</u>
<u>14.</u>	<u>Nebraska—8.</u>
<u>15.</u>	<u>Connecticut—9.</u>
<u>16.</u>	<u>New York—11.</u>
<u>17.</u>	<u>Iowa—11.</u>
<u>18.</u>	<u>Kansas—11.</u>
<u>19.</u>	<u>New Jersey—12.</u>
<u>20.</u>	<u>Wisconsin—13.</u>
<u>21.</u>	<u>Colorado—15.</u>
<u>22.</u>	<u>Rhode Island—15.</u>
<u>23.</u>	<u>Pennsylvania—16.</u>
<u>24.</u>	<u>New Hampshire—16.</u>
<u>25.</u>	<u>Illinois—17.</u>
<u>26.</u>	<u>Michigan—17.</u>
<u>27.</u>	<u>Ohio—20.</u>
<u>28.</u>	<u>Indiana—23.</u>
<u>29.</u>	<u>Maine—28.</u>
<u>30.</u>	<u>Vermont—29.</u>
<u>31.</u>	<u>Arizona—33.</u>
<u>32.</u>	<u>Maryland—34.</u>
<u>33.</u>	<u>Missouri—38.</u>
<u>34.</u>	<u>Oklahoma—40.</u>
<u>35.</u>	<u>Delaware—40.</u>
<u>36.</u>	<u>Texas—43.</u>
<u>37.</u>	<u>Florida—49.</u>
<u>38.</u>	<u>Mississippi—60.</u>
<u>39.</u>	<u>West Virginia—75.</u>
<u>40.</u>	<u>Arkansas—75.</u>
<u>41.</u>	<u>Georgia—87.</u>
<u>42.</u>	<u>Virginia—97.</u>
<u>43.</u>	<u>Alabama—106.</u>
<u>44.</u>	<u>South Carolina—108.</u>
<u>45.</u>	<u>Tennessee—113.</u>
<u>46.</u>	<u>New Mexico—114.</u>
<u>47.</u>	<u>Kentucky—119.</u>
<u>48.</u>	<u>Louisiana—136.</u>
<u>49.</u>	<u>North Carolina—140.</u>

Number of illiterates per thousand of the negro male population 21 years of age and over in 1910.

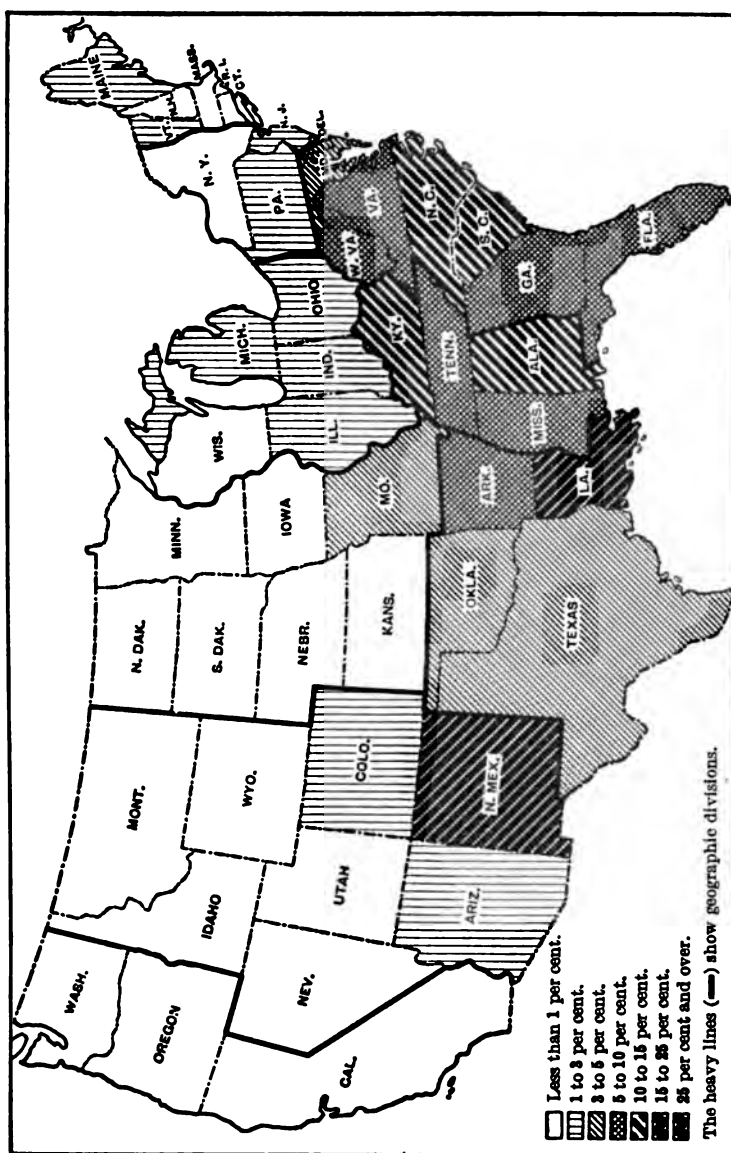
1. Oregon—31.	
2. Minnesota—36.	
3. Wyoming—38.	
4. Washington—39.	
5. Vermont—39.	
6. Utah—46.	
7. Idaho—49.	
8. New York—50.	
9. North Dakota—51.	
10. Wisconsin—54.	
11. Michigan—63.	
12. Connecticut—66.	
13. Nevada—66.	
14. California—68.	
15. South Dakota—70.	
16. Nebraska—72.	
17. Arizona—84.	
18. Colorado—87.	
19. Montana—88.	
20. Massachusetts—94.	
21. Pennsylvania—101.	
22. New Jersey—107.	
23. Illinois—109.	
24. Rhode Island—112.	
25. Iowa—115.	
26. Maine—116.	
27. Ohio—132.	
28. Kansas—135.	
29. New Mexico—137.	
30. District of Columbia—138.	
31. New Hampshire—145.	
32. Indiana—160.	
33. Missouri—190.	
34. Oklahoma—201.	
35. West Virginia—240.	
36. Florida—259.	
37. Maryland—273.	
38. Arkansas—287.	
39. Texas—299.	
40. Delaware—313.	
41. Tennessee—321.	
42. Kentucky—343.	
43. Virginia—363.	
44. North Carolina—386.	
45. Mississippi—410.	
46. Georgia—416.	
47. South Carolina—431.	
48. Alabama—434.	
49. Louisiana—483.	



TOTAL POPULATION.

PERCENTAGE OF ILLITERATES IN THE POPULATION 10 YEARS OF AGE AND OVER, 1910.

(From the Abstract of the Census, 1910, page 246.)



NATIVE WHITES OF NATIVE PARENTAGE.

PERCENTAGE OF ILLITERATES IN THE POPULATION 10 YEARS OF AGE AND OVER, 1910.

(From the Abstract of the Census, 1910, page 246.)

To wait for a generation of illiterate men, women, and children to die is a slow and painful process. That there is a shorter way to the reduction and elimination of illiteracy has been proven by some European States, and sporadic efforts in this country indicate that there is a better way here, to wit: To teach these grown-ups, in schools organized especially for them, to read and write, and possibly something more.

One of the most notable recent attempts to do this is that begun in September, 1911, by Mrs. Cora Wilson Stewart, superintendent of schools in Rowan County, Ky., and her associates.

Having studied carefully the conditions of the county, Mrs. Stewart decided to open night schools for adults on moonlight nights in the public schoolhouses of the county. She outlined her plan to the teachers and called for volunteers. All the teachers of the county responded. On Labor Day, September 4, 1911, these teachers visited the homes of the people throughout the county, explained the plan, and announced that moonlight schools would be opened the next evening. It was expected that the response would be slow, but more than 1,200 men and women from 18 to 86 years old were enrolled the first evening. They came trooping over the hills and out of the hollows, some to add to the meager education received in the inadequate schools of their childhood, some to receive their first lessons in reading and writing. Among these were not only illiterate farmers and their illiterate wives, sons, and daughters, but also illiterate merchants or "store-keepers," illiterate ministers, and illiterate lumbermen. Mothers, bent with age, came that they might learn to read letters from absent sons and daughters, and that they might learn for the first time to write to them.

Almost one-third of the population of the county was enrolled. Says Mrs. Stewart:

They had all the excuses and all the barriers which any people might offer—high hills, bridgeless streams, rugged roads, weariness from the day's hard toil, the shame of beginning study late in life, and all the others; but they were not seeking excuses—they were sincerely and earnestly seeking knowledge. Their interests, their zeal, and their enthusiasm were wonderful to witness. It was truly an inspiring sight to see these aged pupils bending over the desks which their children and grandchildren had occupied during the day. Their delight in learning and their pride in their achievements exceeded any joy that I have ever witnessed.

In some instances, where shyness prevented some of the adults from attending at first, lessons were given in their homes until they could read and write a little. They were then willing and eager to enroll in the night schools.

In September, 1912, a "moonlight school" teachers' institute was held in Morehead, Ky.; and the superintendent and teachers who had



A. ELIZABETH PRINCE, 70 YEARS OF AGE.
She learned in eight weeks to write her first letter.



B. UNCLE MARTIN SLOAN; AGE, 87
The oldest pupil in the moonlight.



A. A LESSON IN READING WITH A NEWSPAPER AS THE TEXT.



B. FOUR GENERATIONS REPRESENTED IN THE SAME SCHOOLROOM.

conducted the first moonlight schools instructed others who wished to do work of this kind in Rowan and adjoining counties, and in the fall of 1912 the movement spread to 8 or 10 other counties, while the enrollment of adults in Rowan County reached nearly 1,600.

The success of the men and women proves that it is not so difficult for illiterate grown-ups to learn to read and write as is generally supposed. They learn in a very short time, if given the opportunity. Reading, writing, and arithmetic are simple subjects when mature minds are concentrated upon them. A child of ordinary mind can be taught to read and write in three or four weeks; and the adult can do at least as well. One man, aged 30, after four lessons in the evening school, wrote the county superintendent a legible letter. Another man, aged 50, wrote a legible letter after 7 nights' attendance. A woman, aged 70, wrote a legible letter after 8 nights of study. These cases are, of course, exceptional; but experience has shown that a few weeks' attendance at the night schools has been sufficient to enable the adult pupils to pass over the dark line of illiteracy and to get into the class of literates. Several succeeded in securing a Bible, which had been offered as a prize by the superintendent to those who would learn to write a letter during the first two weeks of the moonlight school term.

In some of the districts the enrollment of adults exceeded the enrollment of children. In two districts the enrollment ran as high as 70, and in several as high as 65.

One teacher, 18 years old, had only four adult pupils in her class, but one of these was a preacher who learned to read his Bible and a newspaper after a few weeks of earnest study. After 4 lessons he signed his name to a paper for the first time; and after 7 lessons, to quote the words of the county superintendent, "he wrote an enthusiastic letter, with a period at the close of each sentence as large as a bird's eye."

In another night school, of 65 enrolled, 23 were illiterates, and there were 3 preachers in the class. Several octogenarians were enrolled in these schools; one a woman 85, another a man 87. Some of the men and women entered the schoolroom for the first time in their lives when they enrolled as night pupils.

One of the significant facts brought out in this experiment is that adults of limited education have taken advantage of the opportunity to return to school and to increase their knowledge. Of the 1,600 adult pupils attending night school during the second term, 300 were unable to read and write at all, 300 were from those who had learned in September, 1911, and 1,000 were men and women of meager education.

In a number of instances adults from the night schools have enrolled as pupils in the day schools; and the superintendent states

morehead, Ky.

Oct, 30, 1912,

Mrs Cora Stewart

Dear Supr.

This is the first letter I ever tried to write

I have enjoyed the night school very good. Our school has enrolled 65 pupils with 20 beginners of which I am one of the beginners.

I have attended only five nights have learned very much during that time.

Yours truly
Moses Wallace

LETTER NO. 1. THE RESULT OF FIVE NIGHTS' INSTRUCTION.

The writer, Moses Wallace, is 32 years old.

that the presence of a determined man or woman in the school has proven an inspiration to pupils and teacher.

The change in the attitude of the community toward the school, where the night school has been undertaken, is in itself significant. A school trustee thus describes the change in his community:

I have lived in this district for 55 years and I never saw any such interest as we have here now. The school used to just drag along, and nobody seemed interested. We never had a gathering at the school, and nobody thought of visiting the school. We had not had night school but three weeks until we got together right. We papered

Laybourny

Nov. 20, 1912

Mrs. Cora Wilson Stewart
Morehead, Ky.

Dear Supt: Our night
school is out to night
and want to thank you
and our teacher for the
opportunity I have had to
attend school in wellhouse
Dist.

Sincerely yours
J. C. Trent

LETTER NO. 2. THE WRITER'S FIRST LETTER. HE IS THE FATHER OF SEVEN SONS.

the house, put in new windows, purchased new stovepipe, made new steps, contributed money, and bought the winter's fuel.

Now we have a live Sunday school, a singing school, prayer meeting once each week, and preaching twice a month. People of all denominations in the district meet and worship together in perfect unity and harmony, aged people come regularly, and even people from the adjoining county are beginning to come over to our little schoolhouse.

The remark of one old woman of 70 probably voices the feelings and sentiments of all the adults who have learned to read and write in

these night schools. When asked what benefit the moonlight school had been to her, she said, "Oh, to be able to read my Bible and to write to my children and grandchildren! I would not take anything for the privilege."

The studies pursued in these moonlight schools are reading, writing, arithmetic, and spelling. Brief drills are given in the essential facts of language, history, geography, civics, sanitation, agriculture, and horticulture. The reading text is the Rowan County School Messenger, edited by the county superintendent, published weekly for the special benefit of the adult students, and furnished free of charge. This paper deals largely with school and county affairs, and the news is made up in short sentences designed to help the pupils in their efforts to read.

This experiment in Rowan County, Ky., shows that it is possible to bring help to illiterate men and women even under the most difficult and adverse circumstances.

The following extracts from an article in the Louisville Courier-Journal of December 29, 1912, show the spirit of this work so well that they are included here:

The teachers gladly gave volunteer service and received no compensation whatever. A few prizes were offered to stimulate teachers and trustees and were to be awarded on the highest enrollment, the largest attendance, and the number of illiterates taught, but teachers and trustees announced that any prizes won by them would be donated to the district for libraries and other needed improvements. The teachers are in the main natives of Rowan County, young in years and in experience, deeply in sympathy with the people and their needs, consecrated to the cause of education, and determined to wipe out illiteracy from the county and to make of each and every citizen, high or low, an intelligent, active, happy factor in the school. They possess a high degree of intelligence, an average amount of scholarship, and the mission spirit, the most essential qualification of a teacher, in the highest degree.

If obstacles presented themselves, the teachers promptly removed them; and if excuses were made, they met them with argument and persuasion and overcame them. Several married teachers who lived at home and rode on horseback to school each day left their homes when the night-school term began and took up their abode in the district. Teachers who lived or boarded long distances from the schoolhouses remained at school from the time the day school began at 8 o'clock in the morning until the night school ended at 9 o'clock in the evening, making a 13-hour day. Some canvassed their districts regularly during the few hours which intervened between the close of the day school and the beginning of the night school and started many who were too diffident to come to school to writing at home, and after they were slightly advanced persuaded them into the school. One widow, who not only taught, but was burdened with household cares, walked back and forth 3 miles with her two children twice each day to the schoolhouse to instruct the pupils in both the day and night school sessions. School was conducted for two hours each evening on four nights during the week, Monday, Tuesday, Wednesday, and Thursday evenings, leaving the teachers three nights for complete rest and relaxation to refresh them for the work of the next week. None showed any particular evidence of strain or fatigue or overwork, and each and every one declared the work a most delightful and fascinating one and one which even greatly increased the interest and added to the success of the day school.



**A. MARTIN DE HART, A PRIZE
WINNER.**



B. SCHOOLMATES.
The man is 72; the woman, 68.



C. UNCLE RANS BURTON; AGE, 76.



D. MRS. A. J. WHITE.

PUPILS IN THE ROWAN COUNTY MOONLIGHT SCHOOLS.



A. NIGHT SCHOOL AT OPEN FORK.

The oldest pupil was 73.



B. A GROUP OF EAGER STUDENTS.

Too much credit can not be given these teachers—faithful, earnest, heroic servants of the Commonwealth—who volunteered to teach by night as well as by day. In

clayton N.Y.
Dear Sir, now 1912 more

head. N.Y. Mrs. Cara Wilson
Stewart I am writing you the first
letter as I have learned to write in
the night school at New Home
Dist. I am so pleased may this
right school move on we must
continue until every person
in Rowan County can read
and right I trust I will be to
get the Bible sincerely
you may the Blessings
of God rest upon you
may he assist you in
every good work
I am my dear Willie Black

LETTER NO. 3. FROM THE FATHER OF TEN CHILDREN.

no crusade or march of progress has more self-sacrifice or heroism been shown than has been displayed by them. Patriots they are, of the truest kind.

From this school, under the instruction of an 18-year-old girl, a beginner in the profession of teaching, a preacher 50 years of age was graduated in reading and writing, for the terms of graduation were only that he should be able to read his Bible and the newspaper with reasonable facility, and should write a legible letter, and both of these he now can do to his unspeakable pride and joy.

He signed his name to the assessor's list, for the first time, after four nights' instruction, and wrote the superintendent a legible, four-page, enthusiastic letter with a period at the close of each sentence as large as a bird's-eye, when he had been a pupil of the school but seven evenings. The youthful teacher was inclined to apologize for the few that she had enrolled, and said: "I didn't have as large school as the others—just four—but they were in earnest, and I did my best for them, and told them that I would teach as long as one of them would come," and then she said with a twinkle in her eye, and an evident thrill of pride, "but I taught a preacher to read and write, and that was something, waa'n't it?"

One school of 65 pupils had 23 illiterates, all of whom were taught by a young teacher to read and write. Three preachers were enrolled in this school, and added much by their interest, their zeal, and their influence. In fact, all ministers in the rural sections aided much in the work. They assisted in campaigning and organizing, and the more learned assisted in teaching, while those who were unlearned sought more eagerly than any others to acquire some education. Four preachers were taught to read and write. These and all other beginning students in the night school who learned to read and write and who wrote the superintendent their first letter received as a prize a Bible with their names engraved upon it.

On one of her visits to a moonlight school the writer watched the eager, happy throng come trooping through the moonlight, laughing and talking together in free and easy schoolmate fashion, and as they entered the door noted that there were not only students of all ages, from the maid of 18 and the youth who had just attained his majority to the grandame of 50 and the grandfather of 80, but there were a carpenter, a merchant, a manufacturer, a postmaster, a magistrate, a doctor, a preacher, school trustee, five former teachers, farmers and farmers' wives and their sons and daughter, many educated persons and eight illiterates. That the thirst for knowledge and the determination to reach a more elevated station in life were not confined to any age or any class seemed self-evident, and that the moonlight school met the demands of those in any age and of all these various classes was proven by the fact that they came again and again, and plead for a longer term when its sessions closed.

The studies pursued were, essentially, reading, writing, spelling, and arithmetic, but brief drills were given on the most significant facts in language, history, geography, civics, sanitation, agriculture, and horticulture. With beginners, writing was the most fascinating study, while the more advanced were divided in their preference between arithmetic and agriculture and made most rapid progress in the study of each. Horticulture was discussed and fruit grafting was performed in some schools.

The reading text was a little newspaper, the Rowan County School Messenger, edited by the county superintendent and published weekly for the special benefit of the adult students and furnished to them free of charge. Its motto and the motto of the moonlight schools was:

The riches of the commonwealth
Are free, strong minds and hearts of health,
And more to her than gold or grain
Are cunning hand and cultured brain.

This paper dealt largely with school and county affairs and was made up of short sentences intended to inspire effort and to arouse the curiosity of the beginner so that he would immediately seek to read the next sentence. And it had the desired effect, for no sentence in any book could have spurred the reader on to seek further as did the announcement that "John Brown has moved to Kansas," for immediately

the desire to know, such as impels the reader of fiction, what was going to happen next, or what had happened, was uppermost, and so there was renewed zeal and effort to master the next sentence and to see who else had moved, and who was visiting, and who had painted or built a new house.

The statements of school improvements, too, served two purposes, one for practice in reading, and the other to arouse the readers to make their district excel the one which was being exploited, and this, also, was effective, for when the people of Slab Camp read the statement "They are putting up window shades and hemstitching curtains for the school at Chestnut Grove," they at once decided that Slab Camp was not going to be behind the rest, and that what Chestnut Grove could do Slab Camp could do, and shades and curtains went up, without delay, in Slab Camp school-house, too. And if one school read that another was germinating seed corn or grafting fruit trees, the same course was adopted by them then and there.

The newspaper contained one poem, running in sections, a stanza or two was to be memorized each week. This was Longfellow's "Psalm of Life," and was learned more for its sublimity of thought, the training of expression, and the acquisition of new words and phrases than as a memory drill. All drill questions on the various branches were published in the paper. Among them all none created a more genuine interest than the drill in language. Drills in the correction of such words as "crick," "kiver," "git," "yit," "hit," "seed," "hyeard," "tuck," "fust," "hain't," "skeered," and many others caused much merriment among even those who had been in the habit of employing them, as well as those who were accustomed only to using the proper forms. All joined heartily in drilling on the correct forms, and afterwards took great pride in using them. Drills on words ending in "g" resulted in the correction of the careless habit of saying "doin'," "goin'," "readin'," "writin'," and of other words which had been abridged in the same way.

The text used in arithmetic was a small book recently published and dealing entirely with the problems of rural life, and meeting adequately the needs of a rural people. This book became most popular and took rank next to the Bible in many homes.

Another school trustee, who attended the night school through the same sense of obligation, received an inspiration and is now a student in the day school, along with his own children, every day.

This man is at present secretary of the county board of education, and those who enter a certain remote schoolhouse will not only have turned to them the eager face of his 6-year old son, but will be greeted by the inspired face of this man past 40, a face lighted up with an unusual intellect, high character, and noble purpose. A hungry, appealing look it is at present, for he has high aspirations, and realizes that it is a long step up to them; but one of them is almost within his grasp, and with his spirit of determination and persistence he will reach it, and that is the ambition to be a teacher, and to lead others, as he was led, along the night-school road to a higher education.

One justice of the peace and one ex-magistrate enjoyed the advantages of the night school and afterwards enrolled in day school. In several day schools may be found the child of 5 and the man or woman of 40, and, in every instance, the presence of a determined adult has proven to be an inspiration to both pupils and teacher.

An aged father and mother, parents of 14 children, all of whom had gone beyond the rooftree, and grandparents of 84 grandchildren, learned to read and write, and absent ones, to their surprise and excessive joy, learned that father and mother had been attending Moonlight School and could read and write, and not only was a new world of communication opened to the aged couple, but a new joy and a new uplift and a new dignity was given to their absent ones, making them, doubtless, better citizens of their adopted States.

What has been accomplished in Rowan as a county system has been accomplished in districts here and there this year in other counties. In the Sandy Valley hundreds have enrolled, 400 in Lawrence County alone. In Boyd County in one district it

was tried, and the people responded to the number of 60. In Madison a school was conducted among the tenant class, and was thronged with eager students. At the close of a two weeks' session all these tenants could read and write, and one of them was so elated with his acquirements that he wrote to his landlord, a State official, and informed him that he no longer had an ignorant tenant.

Clayton Ky

Oct. 15, 1912

Dear Supt

I have ben going to
our night school
I have learnt to read
and write some

my name is
martin D chart and
I am 33 years old
we have a good
school and I think
all ought to come
it gives the old
people a chance to
learn we have a
good teacher and
he takes great

LETTER NO. 4. THE NIGHT SCHOOL LETTER WHICH WON FIRST PRIZE.

In Garrard County, at Buena Vista, a noble teacher opened the school for night sessions, and found an anxious crowd of adults to greet her each evening, students who plead for a lengthened term.

One middle-aged man was so fascinated by the ability to write his name that he wrote it over and over again for two whole days, and was the more elated at every stroke.

One father and mother came into a school one night with six grown sons, three of whom were married, and all voters. Within two nights both parents and sons could write their names, and within two weeks they could all write a respectable letter.

John Dehart declares in his first letter that he would not take \$10,000 for what he has learned. Doubtless, besides the increased happiness and usefulness, the knowledge which he has gained will add that much to his earning capacity during the rest

delight in learning
us i am glad i
have ben coming
we have enrolled
44 and hope to have
more before it closes
our oldest pupil
is m r Slone who is 87
years old
i think the night
school is the
greatest thing
ever has ben
gotten up
yours truly

Martin Dehart

LETTER NO. 4—Continued.

of his lifetime, for he is but 25 years old and belongs to a family of remarkable vigor and noted longevity. John has come to realize his possibilities, and has caught a vision of higher achievements, and has enrolled as a regular scholar in the day school since the night school closed.

In fact, more than one adult has found in the day school a lengthened opportunity, after the night-school sessions were over. Last year a school trustee of limited education attended the school at night, partly as an official duty, and also to accompany

his wife, who was the teacher. During the session he caught a glimpse of possible power and service, and enrolled immediately in the day school, and attended every day, being taught by his wife. When the day school closed, he entered a private normal school, applying himself assiduously until summer, when he secured a certificate to teach. This year he is one of the most earnest and successful teachers in Rowan County and in both day and night school he manifests a spirit of consecration only possible to one who has come into the service along a rugged path, beset by many difficulties. He, at least, can sympathize in the fullest with his adult students as they bend over book, copy book or newspaper.

As every teacher was inspired with the idea that he was upbuilding the Commonwealth, as well as uplifting humanity, every citizen had pride in assisting his neighbor to be and in making of himself a more useful factor of society and a more intelligent citizen. A man redeemed from illiteracy became at once a source of pride and admiration to his neighbors, as well as to himself and his family, and, like most new converts to a cause, he exceeded the old adherents in zeal and loyalty and became a most enthusiastic advocate of the cause of education, faithfully supporting the compulsory school law, the school improvement league, the library, and all the aids to education.

The solution of many of the problems of the day school have come about through the night school; parents who, after they became students and inmates of the school, came to see the necessity of certain improvements to which they had hitherto been apparently blind. In one district for 20 years children had hopped across the creek from one stone to another and had scrambled up a steep, slippery bank to the school. The parents and grandparents had hopped and scrambled but a few nights until they discovered that a footbridge across that stream was an immediate necessity, and the agitation for a footbridge was at once begun.





A SPELLING MATCH.



A. MATHEMATICS IS AN ABSORBING STUDY.



B. THIRST FOR KNOWLEDGE NOT QUENCHED BY PASSING YEARS.



A. MATHEMATICS IS AN ABSORBING STUDY.



B. THIRST FOR KNOWLEDGE NOT QUENCHED BY PASSING YEARS.

UNITED STATES BUREAU OF EDUCATION
BULLETIN, 1913, NO. 21

WHOLE NUMBER 581

MONTHLY RECORD OF CURRENT EDUCATIONAL PUBLICATIONS

COMPILED BY THE LIBRARY DIVISION OF THE
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TION OF JOHN D. WOLCOTT, ACTING LIBRARIAN

JUNE, 1913



WASHINGTON
GOVERNMENT PRINTING OFFICE
1913

BULLETIN OF THE BUREAU OF EDUCATION.

[With the exceptions indicated, the documents named below will be sent free of charge upon application to the Commissioner of Education, Washington, D. C. Those marked with an asterisk (*) are no longer available for free distribution, but may be had of the Superintendent of Documents, Government Printing Office, Washington, D. C., upon payment of the price stated. Documents marked with a dagger (†) are out of print. Titles are abbreviated.]

1909.

- No. 1. Facilities for study and research in Washington. Arthur T. Hadley.
- No. 2. Admission of Chinese students to American universities. John Fryer.
- *No. 3. Daily meals of school children. Caroline L. Hunt. 10 cts.
- *No. 4. The teaching staff of secondary schools. E. L. Thorndike. 10 cts.
- No. 5. Statistics of public, society, and school libraries in 1908.
- *No. 6. Instruction in the fine and manual arts. Henry T. Bailey. 15 cts.
- No. 7. Index to the Reports of the Commissioner of Education, 1887-1907.
- *No. 8. A teacher's professional library. Classified list of 100 titles. 5 cts.
- No. 9. Bibliography of education for 1908-9.
- No. 10. Education for efficiency in railroad service. J. Shirley Easton.
- *No. 11. Statistics of State universities, etc., 1908-9. 5 cts.

1910.

- No. 1. Reform in teaching religion in Saxony. Arley Barthlow Shaw.
- No. 2. State school systems, Oct. 1, 1908, to Oct. 1, 1909. E. C. Elliott.
- †No. 3. List of publications of the United States Bureau of Education, 1887-1910.
- No. 4. The biological stations of Europe. Charles Atwood Kofoid.
- No. 5. American schoolhouses. Fletcher B. Dresslar.
- *No. 6. Statistics of State universities, etc., 1909-10. 5 cts.

1911.

- *No. 1. Bibliography of science teaching. 5 cts.
- No. 2. Opportunities for graduate study in agriculture. A. C. Monahan.
- *No. 3. Agencies for improvement of teachers in service. William C. Ruediger. 15 cts.
- *No. 4. Report of the commission to study the public schools of Baltimore. 10 cts.
- No. 5. Age and grade census of schools and colleges. George Drayton Strayer.
- No. 6. Graduate work in mathematics in universities.
- No. 7. Undergraduate work in mathematics in colleges and universities.
- No. 8. Examinations in mathematics.
- No. 9. Mathematics in technological schools of collegiate grade.
- *No. 10. Bibliography of education for 1909-10. 15 cts.
- *No. 11. Bibliography of child study for the years 1908-9. 10 cts.
- No. 12. Training of teachers of elementary and secondary mathematics.
- No. 13. Mathematics in elementary schools.
- *No. 14. Provision for exceptional children in the public schools. 10 cts.
- *No. 15. Educational system of China as recently reconstructed. H. E. King. 10 cts.
- No. 16. Mathematics in public and private secondary schools.
- *No. 17. List of publications of the U. S. Bureau of Education, October, 1911. 5 cts.
- No. 18. Teachers' certificates (laws and regulations). Harlan Updegraff.
- No. 19. Statistics of State universities, etc., 1910-11.

1913.

- *No. 1. Course of study for rural school-teachers. F. Matchless and W. J. Craig. 5 cts.
- No. 2. Mathematics at West Point and Annapolis.
- No. 3. Report of committee on uniform records and reports.
- No. 4. Mathematics in technical secondary schools.
- No. 5. A study of expenses of city school systems. Harlan Updegraff.
- *No. 6. Agricultural education in secondary schools. 10 cts.

(Continued on p. 3 of cover.)

UNITED STATES BUREAU OF EDUCATION

BULLETIN, 1913, NO. 21 - - - - - WHOLE NUMBER 531

MONTHLY RECORD OF CURRENT EDUCATIONAL PUBLICATIONS

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JUNE, 1913



WASHINGTON
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MONTHLY RECORD OF CURRENT EDUCATIONAL PUBLICATIONS.

INTRODUCTORY NOTES.

Some notable books and articles mentioned in the following pages are: Brereton, *Studies in foreign education*; Comandini, *Il problema della scuola in Italia*; Kuo, *Effect of the revolution upon the educational system of China*; Boutroux, *Education and ethics*; Weeks, *Education of to-morrow*; Yocum, *Culture, discipline, and democracy*; De Garmo, *Aesthetic education*; International Kindergarten Union, *Committee of Nineteen, Report*; Lull, *Inherited tendencies of secondary instruction in the United States*; Foster, *The college president*; Roosevelt, *High school and college*; Dresslar, *School hygiene*; Dewey, *An undemocratic proposal*; Mühlmann, *Reiseberichte*.

Of the publications listed in this bulletin, only those named in the section headed "Bureau of Education: Recent publications" are available for free distribution by this office. All others may ordinarily be obtained from their respective publishers, either directly or through a dealer, or in the case of an association publication, from the secretary of the issuing organization.

A directory of the periodicals indexed in the following pages may be found at the end of this bulletin. Many others besides those named have been examined in search of important educational material.

Books, pamphlets, etc., intended for inclusion in this record should be sent to the library of the Bureau of Education, Washington, D. C.

With this issue the Monthly record suspends publication for the summer.

PUBLICATIONS OF ASSOCIATIONS.

829. **American medical association. Council on medical education.** Report of the ninth annual conference, Chicago, February 24, 1913. Chicago, The Association, 1913. [39]-117 p. 8°. (American medical association bulletin, v. 8, no. 4, March 15, 1913.) (N. P. Colwell, secretary of Council, Chicago, Ill.)

Contains: 1. A. D. Bevan: *Third classification of colleges*, p. 44-46. 2. N. P. Colwell: *Present status of medical education*, p. 49-55. 3. Abraham Flexner: *The European side of medical education*, p. 56-64; *Discussion*, p. 64-70. 4. H. P. Judson: *Necessity of a readjustment of preliminary and collegiate education prerequisite to medicine*, p. 70-74. 5. E. H. Bradford: *Organization of the medical school*, p. 74-77. 6. C. F. Thwing: *The organization of medical schools*, p. 77-80. 7. G. E. Vincent: *Organization of the medical school*, p. 80-84; *Discussion*, p. 84-88. 8. H. D. Arnold: *Hospitals and their relationship to clinical and postgraduate medical teaching*, p. 88-97; *Discussion*, p. 97-104. 9. J. A. Witherspoon: *The medical profession and medical education*, p. 114-17.

- 830. Brown university teachers' association.** [Addresses at the meeting held March 1913, at Providence, R. I.] Education, 33: 527-69, May 1913.

Contains: 1. Greater flexibility in college entrance requirements—W. H. Holmes: The needs of the high schools, p. 527-36; H. B. Huntington: The attitude of colleges, p. 537-44; H. N. Davis: The new Harvard plan, p. 545-51. 2. The eye and the printed page—G. M. Whipple: The eye movements in reading, p. 552-58; T. H. Briggs: The right way to read, p. 559-63; H. L. Koopman: How students actually read, p. 563-69.

- 831. Illinois. University. School of education. High school conference.** Proceedings, November 21, 22, 23, 1912. Ed. by H. A. Hollister. Urbana, Ill., The University [1913] 230 p. 8°. (University of Illinois bulletin, vol. 10, no. 19, February 3, 1913)

Contains: 1. E. P. Cubberley: The California system of high school support, p. 11-23. 2. L. C. Lord: Report of the Conference committee on the standard of preparation both in scholarship and professionally for high school teachers, p. 23-29. 3. A. L. Odenweller: A view of community high schools under the act of 1911, p. 35-40. 4. F. M. Leavitt: Place of industries in education, p. 41-43; Discussion by W. A. Richards, p. 43-46. 5. Carl Colvin: School and home gardens, p. 54-59. 6. Suggested syllabus of high school sociology, p. 71-81. 7. The ideal scheme of study for a four years' high school [commercial] course, considered from the viewpoint of the high school, university, and the business community, [by] T. H. Ziegler, p. 91-94; [by] E. F. Burch, p. 94-96; [by] W. E. Hotchkiss, p. 96-100. 8. W. W. Hatfield: High school graduates' opinions of their training in English composition, p. 119-23. 9. F. S. Needham: The course of study in machine drawing for high schools, p. 153-56. 10. R. L. Sandwick: Teaching the modern languages, p. 169-75. 11. C. E. Lawyer: The value of music courses in the high school, p. 186-88. 12. F. D. Barber: Teaching of chemistry in relation to daily life, p. 190-200. 13. C. R. Mann: Bringing physics close to the daily life, p. 200-207.

- 832. London county council. Conference of teachers, 1913.** Report of proceedings. London, P. S. King and son, 1913. 72 p. f°.

Contains: 1. C. S. Cobb: Montessori method in education, p. 1-2. 2. Madame Pujol-Ségales: Function of the teacher in the education of young children, p. 2-4. 3. Evelyn Liddbetter: Teaching of writing and reading—the value of muscular memory, p. 5-6. 4. Miss H. Pizer: Free discipline in large classes of children, p. 6-11. 5. G. F. Daniell: Influence of school books upon eyesight, p. 11-15. 6. J. Kerr: Reading and writing from the medical point of view, p. 15-18. 7. Edward Johnston: General principles of handwriting, or the teaching of handwriting as penmanship, p. 18-22. 8. J. W. Adamson: Attention: The child's point of view, p. 23-25. 9. C. L. Burt: Relation of attention to instinct and interest, p. 25-27. 10. T. H. Pear: Recent researches on the subject of attention, p. 28-34. 11. L. E. Hill: Open-air and exercise, p. 34-39. 12. Kate True-love: Instruction in infant care in girls' schools, p. 39-41. 13. A. J. Green: Value of the open-air school, p. 41-48. 14. Miss Dixon: Suggestions for toymaking, p. 48-50. 15. B. H. Clift: Handwork in a junior mixed school, p. 50-53. 16. W. F. Fowler: Teaching of handicraft in the lower standards, p. 53-58. 17. F. R. Hurlstone-Jones: Economics for schoolboys, p. 59-61. 18. Miss E. S. Evans: How to encourage the love of home reading, p. 61-65.

- 833. National commercial teachers' federation.** Proceedings . . . at the sixteenth annual convention, held at Spokane, Wash., July 15, 16, 17, 18, 1912. Published by the Association. 174 p. 8°. (W. E. Ingersoll, general secretary, Portland, Oreg.)

Contains: 1. Z. P. Smith: Co-operation, p. 27-30; Discussion, p. 30-36. 2. T. F. Campbell: Bookkeeping in the business college—present results compared with possibilities, p. 49-56. 3. M. M. Higley: What should be required before a diploma is granted? p. 61-65. 4. E. B. Moore: How to maintain interest by tests, examinations, and prizes, p. 83-88; Discussion, p. 88-90. 5. Lora L. Bowman: How to introduce students to the study of shorthand, p. 90-95; Discussion, p. 95-97. 6. Frances Effinger-Raymond: If I were a teacher of English, p. 102-106; Discussion, p. 106-108. 7. V. E. Madray: To what extent is the office practice practical for the high school? p. 119-23; Discussion, p. 123-24. 8. E. A. Bryan: The commercial teacher's work, p. 128-32.

- 834. New Mexico educational association.** Journal of proceedings and addresses of the twenty-seventh annual meeting, held at Albuquerque, N. Mex., November 6-9, 1912. Santa Fe, N. Mex., Published by the Association, 1912. 166 p. 8°. (R. F. Asplund, secretary, Santa Fe, N. Mex.)

Contains: 1. W. A. Poore: The recognition of teaching as a profession, p. 47-60. 2. A. N. White: The next most important step in educational progress in New Mexico in the rural schools, p. 60-68. 3. T. W. Conway: The next most important step in educational progress in New Mexico in city schools, p. 79-83. 4. A. N. White: What the department of education can do to promote peace teaching in the schools of the state, p. 96-100. 5. J. L. G. Swinney: Qualifications

and scholarship of a county superintendent of schools, p. 104-107. 6. Susie Whitaker: Office training for high-school students, p. 111-14. 7. Helen M. Calkins: An ideal high school commercial course, p. 116-20. 8. M. H. Brasher: Manual training and industrial training, initial cost, and comparative value of this work, p. 124-31. 9. W. F. Osborne: Introduction of manual arts in small town and graded schools, p. 131-34. 10. Mrs. T. B. White: Industrial education for small schools lacking the means for extensive equipment without specially trained teachers, p. 141-44. 11. M. H. Brasher: What the curriculum or the course of study should include to meet the needs of present-day conditions of life, p. 156-63.

835. **Pennsylvania state educational association.** Report of proceedings, with papers read before the general sessions, departments and round table conferences. Harrisburg, December 26-28, 1912. Reprint from Pennsylvania school journal, 1913. 256 p. 4°.

For contents, see separate entries for sections—items 486, 487, 629, 836, 837.

836. ——— **College and normal school department.** [Proceedings of the session held at Harrisburg, December 26, 1912] Pennsylvania school journal, 61: 467-74, April 1913.

Contains: 1. F. N. Buchman: The part played by the Young men's Christian association [in moral education in our higher institutions of learning], p. 467-68. 2. Anna J. McKeag: Moral education, p. 269. 3. H. D. Sheldon: College course in ethics as a means of moral education, p. 469-72. 4. H. M. J. Klein: Moral education in our higher institutions of learning, p. 472-74.

837. ——— **High school department.** Proceedings of the eighth annual session, at Harrisburg, December 27-28, 1912. Pennsylvania school journal, 61: 435-67, April 1913. (J. F. Adams, secretary, Millersburg, Pa.)

Contains: 1. E. Marie Lentz: Standardization of history teaching, p. 442-44. 2. R. E. Thompson: Teaching of political economy in high schools, p. 444-46. 3. N. E. Henry: Humanization of Latin, p. 446-50. 4. S. P. Uhler: Teaching German to best purpose, p. 451-53. 5. Eda A. Welskotten: Teaching German in high school, p. 453-54. 6. A. G. Frank: Place of the text in modern language instruction, p. 454-57. 7. Lillian M. Adams: Problems in teaching English, p. 458-59. 8. A. J. Meredith: Extension work in commercial education, p. 459-63. 9. Control of high school athletics, p. 465-67.

BUREAU OF EDUCATION: RECENT PUBLICATIONS.

838. **Agricultural instruction in secondary schools.** Papers read at the third annual meeting of the American association for the advancement of agricultural teaching, Atlanta, Ga., November 12, 1912. Washington, 1913. 51 p. (Bulletin, 1913, no. 14.)

CONTENTS: 1. H. L. Russell, K. L. Butterfield: Opportunity and responsibility for preparation of teachers of agriculture. 2. W. G. Hummel: First year's work in agriculture in the high school. 3. A. M. Scule: Experiment stations and secondary schools of agriculture. 4. C. G. Selvig, R. W. Stimson: Use of land in connection with agricultural teaching. 5. Appendix A-E.

839. **Annotated bibliography of medical inspection and health supervision of school children in the United States for the years 1909-1912.** Washington, 1913. 132 p. (Bulletin, 1913, no. 16.)

840. **Bibliography of industrial, vocational, and trade education.** Washington, 1913. (Bulletin, 1913, *in press*.)

Annotated list of the more important books, reports, articles from periodicals, etc., from 1900 to date.

841. **The fifteenth international congress on hygiene and demography, held in Washington, D. C., from September 16 to October 5, 1912.** Washington, 1913. 57 p. (Bulletin, 1913, no. 18.)

CONTENTS: I. Some lessons and suggestions from the exhibition, by F. B. Dresslar. II. Digests of some of the papers presented at the congress.

842. **Report of the Committee of the National council of education on standards and tests for measuring the efficiency of schools or systems of schools.** Presented by the chairman of the committee, George Drayton Strayer. Washington, 1913. 23 p. (Bulletin, 1913, no. 13.)

843. **A trade school for girls.** A preliminary investigation in a typical manufacturing city—Worcester, Mass. By the Research department of the Women's educational and industrial union of Boston. Washington, 1913. 59 p. (Bulletin, 1913, no. 17.)

BOOKS, PAMPHLETS, PERIODICAL ARTICLES.

EDUCATIONAL HISTORY.

844. **Eitle, J.** Der unterricht in den einstigen württembergischen klosterschulen von 1556–1806. Berlin, Weidmann, 1913. 84 p. 8°. (3. Beiheft zu der "Zeitschrift für geschichte der erziehung und des unterrichts.")
A scholarly and interesting historical treatment of monastic instruction in Württemberg.
845. **McCormick, Patrick Joseph.** Education of the laity in the early middle ages. Washington, D. C., 1912. 65, [1] p. 8°. Thesis (Ph. D.)—Catholic university of America, 1911.
846. **Warncke, J.** Mittelalterliche schulgeräte im museum zu Lübeck. Zeitschrift für geschichte der erziehung und des unterrichts, 2: 227–50, heft 4, 1912.
Describes mediæval school apparatus recently found in Lübeck.

PRESENT SITUATION.

847. **Brereton, Cloudealey.** Studies in foreign education, with special reference to English problems. London, G. G. Harrap & company, 1913. xii, 302 p. 12°. Contains the following studies reprinted from various sources: 1. A comparison between French and English secondary schools. 2. Thirty years of university education in France. 3. French rural education. 4. The true inwardness of moral instruction in France. 5. Physical education in France. 6. The infant schools of France. 7. The Paris international guild. 8. A look around German schools. 9. The new way of teaching classics in Germany. 10. Toward France or Germany? English education at the crossways. 11. A bird's-eye view of American education.
848. **Comandini, Ubaldo.** Il problema della scuola in Italia. Vol. primo. Istruzione primaria e popolare. Roma, Bontempelli e Invernizzi, 1912. xi, 556 p. 8°.
849. **Dathe, Hans.** Die deutsche schule als klägerin. Pädagogisches archiv, 55: 228–49, heft 4, 1913.
Sums up contemporary criticism of the German schools.
850. **Finegan, Thomas E.** Elementary education. From the Ninth annual report of the New York State Education department. Albany, 1913. [13]–107 p. illus. 8°. Prepared by the Third assistant commissioner of education of New York.
851. **Gottschalk, R.** "Americana paedagogica." Deutsche schule, 17:138–43, March 1913.
An entertaining review of Fr. Beck's book on American education.
852. **Kiess, Kurt.** Zweiter deutscher kongress für jugendbildung und jugendkunde zu München. Pädagogisches archiv, 55:145–62, heft 3, 1913.
Gives a good idea of subjects currently discussed in German educational meetings, e. g.: Present conception of education, special schools, arbeitsschule, general common school, unification of education.
853. **Kuo, P. W.** The effect of the revolution upon the educational system of China. Educational review, 45:457–70, May 1913.
At the present time the Government and the people of China show a strong tendency to emphasize primary education.
854. **Matarollo, G.** La scuola elementare in Roumania. Rivista pedagogica, 6:280–302, April 1913.

855. **Schultze, Ernst.** Kind oder doller. Deutsche schule, 17:210-17, April 1913.
The writer describes with evident amazement the American way of giving publicity to school needs—as exemplified by Greenwich, Conn.
856. **Smith, John.** Broken links in Scottish education. London, J. Nisbet & co., limited, 1913. 178 p. 8°.
CONTENTS: 1. A forgotten chapter in Scottish education. 2. Our school board system of education. 3. Education after fourteen years of age. 4. A broken link in Scottish education. 5. The training of teachers. 6. The junior student system. 7. The education problem in Scotland. 8. A Scottish education committee. 9. Appendix.
857. **Trensch, G.** Die norwegische volkschule. Pädagogische zeitung, 42:247-50, March 27, 1913; 265-68, April 3, 1913.
Historical and descriptive.
858. **Voize, Jean-Raymond.** En Allemagne.—La ville et les écoles. Revue de l'enseignement des langues vivantes, 30: 202-10, April 1913.
Germany and German schools from the point of view of a young French student.
859. **Weir, Preston.** Where education fails. With an introduction by the Rt. Hon. Lord Sheffield. London, Ralph, Holland & co. [1913] 114 p. 12°.
Makes this criticism upon English education: "The forces which at present play upon the schools are not sufficiently penetrative, they bear help and encouragement to the clever, who require it least; but they do not reach the great average mass, which is still unttaught and untrained."

PEDAGOGICS AND DIDACTICS.

860. **Boutroux, Emile.** Education and ethics. Authorized translation by Fred Rothwell. London, Williams & Norgate, 1913. xliv, 236 p. 12°.
Asserts that "education, in its true and complete meaning, is not the acquisition of any particular habit or knowledge, but rather the cultivation of the human being, with all his physical, intellectual, and moral powers."
861. **Bulley, Margaret H.** Beauty as an educational force. Parents' review, 25: 359-78, May 1913.
862. **Chancellor, William Estabrook.** Better school teaching. Educational foundations, 24: 517-32, May 1913.
"The second article of an important series."
863. **Hamilton, Sir Ian.** National life and national training. London, P. S. King & son, 1913. 55 p. 12°.
864. **Hubbard, Frank Gaylord.** Education and leisure. The chairman's address, delivered on Thursday, December 26, 1912, in Indianapolis, Ind., at the eighteenth annual meeting of the Central division of the Association. (Reprinted from the Publications of the Modern language association of America, xxviii, 1) [Cambridge, Mass.] 1913. lxxi-xc p. 8°.
865. **Hübner, M.** Friedrich Paulsen's pädagogik. Lehrerin, 30: 17-19, April 19, 1913.
Analyzes Paulsen's work as a representative of teleological ethics. Paulsen "looked forward to a more complete victory of national unity over sectarianism in education."
866. **Levi, Giulio A.** Programmi, vocazioni, educazione. Nuovi doveri, 7: 83-112, March-May 1913.
Insists upon the principle of differentiated education for different personalities and vocations, and objects vigorously to imposed programs.
867. **Remy, Matilda M.** Why not specialization in the elementary school? Ohio educational monthly, 62: 198-200, May 1913.
Holds that teachers in the elementary schools should specialize and teach the same subject through the grades.

868. **Weeks, Arland D.** The education of to-morrow. The adaptation of school curricula to economic democracy. With an introduction by M. V. O'Shea. New York, Sturgis & Walton company, 1913. x, 232 p. 12°.

Prof. Weeks maintains that true knowledge always assists its possessor to adjust himself to the world in which he lives, and that if pupils in the schools are given this knowledge they will receive culture in the process.

869. **Weimer, Hermann.** The way to the heart of the pupil. Authorized translation by J. Remsen Bishop . . . Adolph Niederpruem . . . with special author's preface for American readers. New York, The Macmillan company, 1913. xiii, 178 p. 12°.

This book is a protest against mechanical methods in the general relationship of teacher and pupil, with special reference to the present movement concerned with mechanical measurement of results of the teacher's work.

870. **Yocum, A. Duncan.** Culture, discipline, and democracy. Philadelphia, C. Sower company, 1913. 320 p. 12°.

Author believes that "for the majority of individuals who do not continue to lead the life of academic specialists, no discipline can be lasting or culture continuing which is not closely related to every-day life."

EDUCATIONAL PSYCHOLOGY, CHILD STUDY.

871. **Calfee, Marguerite.** College freshmen and four general intelligence tests. *Journal of educational psychology*, 4: 223-31, April 1913.

"The four tests used in this investigation were card-dealing, card-sorting, alphabet-sorting, and the mirror test. In all four tests the girls were uniformly faster than the boys. Comparison is also made with the performance of elementary school pupils."

872. **Colvin, Stephen S.** The practical results of recent studies in educational psychology. *School review*, 21: 307-22, May 1913.

Shows psychological effects of drill. Experimental investigations indicate "that drill, when conducted under proper conditions, is an extremely important factor in efficient instruction." Discusses questions asked by teachers, etc.

873. **Gibbs, Mrs. David.** The instincts of children. Their value and importance in education. *Progressive teacher*, 19: 12-14, May 1913.

The sexual instinct.

Continued from the April number. The first installment appeared in the January issue.

874. **Heck, W. H.** A second study of mental fatigue in relation to the daily school program. *Psychological clinic*, 7: 29-34, April 15, 1913.

This report deals with an experiment with sixteen classes, containing 573 pupils, in three Lynchburg (Va.) schools.

875. **Ogden, Robert Morris.** The relation of psychology to philosophy and education. *Psychological review*, 20: 179-93, May 1913.

"Presidential address, delivered before the Southern society for philosophy and psychology at the Johns Hopkins university, April 8, 1913."

876. **Pauchet, Victor.** Rôle de l'auto-suggestion dans l'éducation. *Éducateur moderne*, 8: 158-162, April 1913.

SPECIAL METHODS OF INSTRUCTION.

877. **Assmus, Walter.** Die erziehliche bedeutung der wandervereine. *Monatshefte der Comeniusgesellschaft*, 22: 34-39, April 1913.

Attempts to find a place in present-day education for the tramping clubs (wandervereine) that are so numerous in Germany.

878. **Brewer, Charles B.** The widening field of the moving-picture. Its commercial, educational, and artistic value. *Century magazine*, 86: 66-78, May 1913.

879. **Holliday, Carl.** The motion picture teacher. *World's work*, 26: 39-49, May 1913.

Pedagogical value described. Shows what has been done in public schools with the moving picture as an aid to education.

880. **Kemsies, Ferdinand.** Hygiene und gymnastik im film. Zeitschrift für schulgesundheitspflege, 26: 243-48, April 1913. illus.
Cinematograph as supplementary aid in teaching hygiene and physical education.
881. Eine kinematographische studiengesellschaft. Monatshefte der Comeniusgesellschaft 22: 40-41, April 1913.
Announces the establishment of a "Society for the study of motion pictures," with the purpose of helping the cause of educational films.
882. **Reicke, Erich.** Zur methodik der schulkinematographie. Geographischer anzeiger, 14: 51-54, heft 3, 1913.
Reviews possibilities of motion pictures in teaching geography and indicates a method of using them to best advantage.
883. **Sanderson, F. W.** The kinematograph as an aid in education. School world, 15: 166-70, May 1913.
A paper read before the educational conference at the international kinematograph exhibition, London, March 28 1913.
Advocates the kinematograph as a means of distributing information, and describes its special use in the teaching of geography, history, and the natural sciences.
884. **Whitby, Harry A.** New schools for old. Westminster review, 179: 385-96, April 1913.
Describes the écoles nouvelles of France and Switzerland, and the landerziehungsheime of Germany and Austria. Contrasts them with English public schools.

SPECIAL SUBJECTS OF CURRICULUM.

885. **Black, Norman Fergus.** English for the non-English. Regina, Sask., Regina book shop [1913] 211 p. 12°.
Presents the importance of making English a common tongue, familiar to all citizens, and the means which experience, both in the British Empire and in the United States, has shown best adapted to gaining this end.
886. **Brown, Horace G.** Dramatization in history teaching. Elementary school teacher, 13: 425-33, May 1913.
Describes the essentials of dramatization. Elements considered under the following heads:
1. Motif and effect. 2. Unity. 3. Harmony. 4. Spirit.
887. **Channing, Edward.** Teaching of American history in schools and colleges. History teacher's magazine, 4: 121-23, May 1913.
888. **Clarahan, Mamie M.** An experimental study of methods of teaching high-school German. Columbia, Mo., University of Missouri, 1913. 32 p. 8°.
(University of Missouri bulletin. Educational series, vol. 1, no. 6.)
Enumerates following methods: Grammar, Natural, Psychological (Gouin), Phonetic (Direct?), Reading. Reports results of experiments with various methods.
889. **Collins, Frank H.** Drawing and constructive work for elementary schools. . . . With the course of study adopted by the Board of education of the city of New York and the syllabus in each of these subjects, adopted by the Board of superintendents. New York, C. Scribner's sons, 1913. 108 p. illus. 1°.
890. **Cox, John Harrington.** What is the best preparation for the college teacher of English? Training for teaching and training for research. English journal, 2: 207-14, April 1913.
"A paper read before the English section of the Central division of the Modern language association at Indianapolis, December 27, 1912."
891. **De Garmo, Charles.** Aesthetic education. Syracuse, C. W. Bardeen, 1913. xi, 161 p. illus. 12°.
(Cornell study bulletins for teachers, no. 6)
This book takes as its motto: "An aesthetic view of the world for every child." It shows how and where to look for beauty, not alone in pictures and statues, but also in nature and in the domain of mechanics and of the arts that pertain to daily living.

892. **Genthe, Karl W.** Das system der höheren schulen Amerikas und der biologische unterricht. Monatshefte für den naturwissenschaftlichen unterricht, 6: 199-213, heft 4, 1913.

This instalment of the article previously noted contains interesting comment on the school garden movement in the United States, Arbor Day, etc.

893. **Goldwasser, Israel Edwin.** Method and methods in the teaching of English. Boston, New York [etc.] D. C. Heath & co. [1913] 301 p. 12°.

894. **Hart, Walter W.** Good form in mathematics. Wisconsin journal of education, 45: 94-95, April 1913.

Discusses good form in the preparation of written exercises in mathematics.

895. **Louthan, Hattie Horner.** A plea for commercial English. Colorado school journal, 28: 23-27, April 1913.

Discusses the unpopularity of the instruction commonly classed as Business English, the cause of and suggested remedies for that unpopularity.

896. **Nott, Jane P.** Poetry as a factor in education. Parents' review, 25: 347-58, May 1913.

897. **Pinloche, A.** Rapport sur la Sixième colonie française de vacances en Allemagne (1912). Revue universitaire, 22: 321-28, April 1913.

The colonies were organized by the Club français de conversation allemande et italienne. The colonists are French boys and girls, who are sent to live in German families for a short time.

898. **Schröder, Johannes Carl August.** Die neuzeitliche entwicklung des mathematischen unterrichts an den höheren mädchenschulen Deutschlands insbesondere Norddeutschlands. Leipzig und Berlin, B. G. Teubner, 1913. xii, 183 p. diags. 8°. (Abhandlungen über den mathematischen unterricht in Deutschland veranlasst durch die Internationale mathematische unterrichtskommission. bd. I. hft. 5)

899. **Smith, David Eugene.** Certain problems in the teaching of secondary mathematics. Mathematics teacher, 5: 161-79, March 1913.

"An address given before the New England association."

900. **Tassin, Algernon.** The disclosures of a college elocution class. Educational review, 45: 485-500, May 1913.

Recommends illuminative oral reading. Emphasizes (1) reading aloud, (2) re-turning the thought in paraphrase and abstract.

901. **Thomas, C. E.** English for industrial pupils. English journal, 2: 241-46, April 1913.

Discusses briefly the reasons why English for industrial pupils should be different from the regular English course, and indicates the character of the work which is being done with the industrial classes at Woodward high school, Cincinnati, Ohio.

902. **Winship, A. E.** The vision of public school music. Journal of education, 77: 507-508, May 8, 1913.

"Address in Chicago, April 22, 1912, National federation of music clubs."

903. **Wolfson, Arthur M.** Efficiency of the history recitation. Educational review, 45: 444-56, May 1913.

Lays stress on methods of teaching. Says that history teachers of this country have devoted too much attention to questions regarding the course of study.

KINDERGARTEN AND PRIMARY SCHOOL.

904. **Findlay, J. J.** The Montessori system; report of an investigation recently conducted at the Fielden school. Educational times, 66: 203-207, May 1, 1913.

Describes an investigation of the principles of the Montessori system applied to a special class of children, in order to ascertain to what extent the children would benefit by it. The results are carefully analyzed from a diary record of each child and from personal observation.

905. **Flowers, Ida V.** Suggestions for class management and seat work in the first grade. *Atlantic educational journal*, 8: 303-306, April 1913.
Furnishes some suggestions of a practical nature, resulting from careful study and observation.
906. **International kindergarten union. Committee of nineteen.** The kindergarten. Reports . . . on the theory and practice of the kindergarten. Boston, New York [etc.] Houghton Mifflin company [1913] xvi, 301 p. 8°.
CONTENTS: Preface, Lucy Wheelock. Introduction, Annie Laws. First report, Susan E. Blow. Second report, Patty Smith Hill. Third report, Elizabeth Harrison.
907. **Madden, Maude W.** A peep into a Japanese primary school. *Primary education*, 21: 269-71, May 1913.
908. **Rodman, Pattie A.** What the kindergarten is doing. *Kindergarten review*, 23: 579-88, May 1913.
Begun in April number.
909. **Townsend, Janet S.** [Montessori training class for teachers] *McClure's magazine*, 41: 184-94, June 1913.
Describes the opening of the first Montessori training class for teachers at Rome.

RURAL EDUCATION.

910. **Barnes, Walter.** English in country schools. Self-education of the country teacher. *Texas school journal*, 30: 11-15, April 1913.
Mentions a few ways in which the country teacher who is really anxious to improve his teaching can do so.
911. **Bricker, Garland A.** Solving the rural recreation problem. *Rural educator*, 1:66-71, May 1913.
Gives reasons for the lack of social enjoyment and recreation in rural communities, and the remedies for the lack.
912. **Brown, C. J.** Grade limitation for one-room schools. *School news and practical educator*, 26: 414-15, May 1913.
Continued from April number.
913. **Hoffman, U. J.** The country school. *School news and practical educator*, 26:411-12, May 1913.
Claims that the needs of the country school are first, good country teachers, second, enough children in regular attendance, third, better public interest.
914. **Israel, Henry, ed.** The country church and community cooperation. New York, London, Association press, 1913. 170 p. 12°.
Contains papers read at the third Country church conference, held at the building of the International committee of Young Men's Christian associations, New York, November 14, 1912, as follows: 1. T. S. Settle: Community cooperation—The country school and the country church. 2. G. Walter Fiske: Religious education as a factor in training for country life. 3. Henry Israel: A coordinating factor. 4. M. S. Stone: Educational readjustment of country life. 5. Wickliffe Rose: How a whole community is being helped. 6. H. N. Morse: Value of a social survey to a community. 7. John Brown, Jr.: A method of making a survey. 8. J. H. Dillard: The new rural South. 9. A. C. Hurd: Religious and educational cooperation with county and state fairs. 10. E. K. Jordan: Play a socializing factor in rural communities. 11. H. D. Maydole: Moral and educational value of athletics. 12. T. N. Carver: Importance of the social survey. 13. E. L. Earp: Need of trained leadership in rural life. 14. D. C. Drew: Home made leaders. 15. M. A. Honline: Religious education in country life. 16. C. O. Bemies: Opportunity of the country pastor to direct social enterprises.
915. **Kent, H. L.** Economy of the one room rural school. *Kansas school magazine*, 2:175-82, May 1913.
The data contained in this article leads to the conclusion that the one room rural school is not economical. The data is published at this time "because there has been considerable demand for this material to use in school consolidation campaigns."

916. **Matthews, Jessie T.** The county school fair. Normal instructor, 22: 11-12, May 1913.
The county school fair movement and what it signifies.
917. **Miller, Frank W.** Community betterment through cooperation. Ohio teacher, 33: 405-406, April 1913.
Discusses means of cooperation for the betterment of the country school.
918. **Winnebago county, Ill.** Superintendent of schools. Annual report, 1912. [Rockford, Ill., The Clark company press, 1913] 96 p. illus. 8°.
O. J. Kern, superintendent.
Contains: 1. Improvement of school buildings and grounds in country life education, p. 4-23. 2. Play and playgrounds in country life education, p. 29-46. 3. Consolidation of schools in country life education, p. 47-66. 4. Nature study agriculture in country life education, p. 67-95.
Copies of this report are available for free distribution by the Commissioner of Education Washington, D. C.

SECONDARY EDUCATION.

919. **Bryan, W. J. S.** The American high school. School and home education, 32: 330-34, May 1913.
"Address delivered as president before the North Central association of colleges and secondary schools at its eighteenth annual meeting."
Before treating of the American high school, the author first gives a brief synopsis of secondary education in a number of European countries.
920. **Lull, Herbert Galen.** Inherited tendencies of secondary instruction in the United States. Berkeley, University of California press, 1913. [155]-281 p. 4°. (University of California publications. Education. vol. 3, no. 3, pp. 155-281, April 15, 1913)
"List of references cited": p. 279-281.
Includes "A study of the changing relationships between colleges and secondary schools; . . . a study of the effects of the amount and quality of preparatory work required by the colleges upon secondary instruction; a study of the effects of the prevailing conceptions of preparatory education, the effects of the Pestalozzian movement, the effects of textbooks, the effects of the scientific movement upon secondary instruction, and the effects of the Report of the Committee of ten upon secondary instruction; and, finally, the contribution of modern psychology to the solution of the problem."
921. **Meredith, A. B.** Suggestions regarding high school graduation exercises. Educational foundations, 24: 547-50, May 1913.
"These advices were addressed to the superintendents and high school principals of New Jersey. They are worthy of attention throughout the country."—Ed.
Gives two representative programs used last year in New Jersey high schools.
922. **Thornton, William M.** The curriculum of the high school. Alumni bulletin of the University of Virginia, ser. 3, vol. 6: 223-34, April 1913.
The author claims that the high-school man who aims to reform the high school must look to his teachers. "Tampering with the curriculum will prove as futile as foolish."

TEACHERS: TRAINING AND PROFESSIONAL STATUS.

923. **Aguayo, A. M.** Los laboratorios de paidologia y las clinicas psicologicas. Habana, Revista de educacion, 1913. 16 p. 8°.
924. **Belcher, Katherine F.** The sabbatical year for the public school teachers. Educational review, 45: 457-84, May 1913.
Advocates the sabbatical year for public school teachers. Gives a list of cities that have put the plan into operation.
925. **Bell, Arch L.** The merit system in promotion of teachers. Kansas school magazine, 2: 186-93, May 1913.
Describes the merit system used in Ottawa, Kans., and gives a sample of the score card used
926. **Blount, Alma.** Normal school training for the teaching of English in elementary schools. English journal, 2: 215-20, April 1913.
"A paper read before the Normal school section of the National council of teachers of English, Chicago, November 29, 1912. The writer examined eighty-five normal school catalogues."

927. **Cifarelli, Tommaso.** La crisi della scuola media e la quistione economica degli insegnanti. *Rivista pedagogica*, 6: 249-279, April 1913.
Discusses the question of scarcity of teachers due to insufficient salaries.
928. **Clement, J. H.** A measuring rod for teaching efficiency. *Kansas school magazine*, 2: 93-102, March 1913.
Relates the experience of the writer, who is superintendent of schools at Dodge City, Kans., with the use of Prof. E. C. Elliott's "Tentative scheme for the measurement of teaching efficiency."
929. **Darenberg, D.** Der lehrer als romanfigur. *Pädagogische zeitung*, 42: 306-10, April 17, 1913.
An interesting study of the teacher-type in the modern German novel, showing how the attitude of writers has changed from one of satire to one of respect.
930. **Decker, W. C.** The German elementary school teacher. *American education*, 16: 376-77, April 1913.
Deals with the training, salaries, etc., of German elementary school teachers.
931. **Drever, James.** The practical training of teachers. *Journal of education* (London), 45: 355-58, May 1913.
Briefly considers three methods of instruction in the principles of practice teaching: (1) The pupil-teacher system, (2) Practice teaching followed by theoretical training, (3) A combination of the practical and theoretical in the training school.
932. **Hughes, Charles C.** Report on efficiency method for rating teachers. *Sierra educational news*, 9: 384-89, May 1913.
933. **Lewis, E. E.** Practice teaching in model schools. *Elementary school teacher*, 13: 434-44, May 1913.
Data obtained in 1909 by the accrediting committee of the California state board of education. A questionnaire was sent to every state normal school in the United States.
934. **Parrott, Rosa B.** The sphere of the normal school. *Oregon teachers monthly*, 17: 427-30, April 1913.
Paper read before the College and normal section of the Oregon state teachers' association.
935. **Pretzel, C. L. A.** Zur reform der lehrerbildung. *Pädagogische zeitung*, 42: 201-6, March 13, 1913.
Enumerates and emphasizes teachers' demands for reform in teacher-training.
936. **Schmid, Bastian.** Die prüfungsordnung für das lehramt an den höheren lehranstalten Bayerns. *Monatshefte für den naturwissenschaftlichen unterricht*, 6: 214-18, heft 4, 1913.
Discusses the new Bavarian teacher requirements with special reference to chemistry, biology, and geography.

HIGHER EDUCATION.

937. **Brown, F. C.** Scholarship and the state. *Popular science monthly*, 82: 510-15, May 1913.
Urges the necessity of the state doing its part in productive scholarship.. Points out the benefits that would accrue in the promotion of research work in state universities.
938. **Cohn, Gustav.** Die hamburgische universität. *Internationale monatschrift für wissenschaft, kunst und technik*, 7: 855-74 (col.), April 1913.
939. **Foster, William T.** The college president. *Science*, n. s. 37: 653-58, May 2, 1913.
Discusses the qualifications necessary for the president of a college. Says that the principle of centralization of responsibility and adequate authority must be reckoned with in all new plans for university control.
940. **Papillon, Thomas L.** What is going on at Oxford. *Educational review*, 45: 433-43, May 1913.
Discusses proposed reforms in curriculum and administration of the University of Oxford and its component colleges.

941. **Pintner, Rudolf.** Eine amerikanische universität. *Neue bahnen*, 24: 355-59, May 1913.
Describes the University of Chicago for German readers.
942. **Richardson, Charles F.** The problem of waste in the college lecture. *School review*, 21: 334-43, May 1913.
Writer thinks it unwise to begin the lecture too soon in elementary courses. Advocates combining it, especially in such topics, as history or physics, with "assigned collateral readings or even a textbook."
943. **Roosevelt, Theodore.** The high school and the college. *Outlook*, 104: 66-68, May 10, 1913.
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944. The royal commission on university education in London. *Quarterly review*, 218: 532-48, April 1913.
945. **Schultze, Ernst.** Die stellung der englischen universitäten zur volksbildung. *Pädagogisches archiv*, 55: 100-16, heft 2, 1913.
A critical survey of the position of the English universities toward popular education in the nineteenth century. Shows how older universities have radically changed their attitude.
946. **Sherman, Stuart P.** Education by the people. *Nation*, 96: 461-64, May 8, 1913.
An answer to Prof. E. P. Morris's article on The college and the intellectual life, *Yale review*, April 1913. Maintains that a state can afford at its universities a liberal arts college of absolutely the first class, and in its high schools ample preparation for it.
947. **Spranger, Eduard.** Wandlungen im wesen der universität seit 100 jahren. Leipzig, E. Wiegandt, 1913. 39 p. 8°.

SCHOOL ADMINISTRATION.

948. Das braunschweigische volkschulgesetz angenommen. *Pädagogische warte*, 20: 384-89, April 1, 1913.
The new school law adopted for Brunswick replaces the act in force since 1851. New provisions.
949. **Dearborn, Walter F.** The practical results of recent studies in educational statistics. *School review*, 21: 297-306, May 1913.
Presents data showing maladjustments between schools and departments of study, and instances of inharmonious working.
950. **Fee, Ira B.** What claim has the community upon a superintendent's time outside of the schools. *Wyoming school journal*, 9: 201-204, April 1913.
951. **Moore, Ernest Carroll.** Indispensable requirements in city school administration. *American school board journal*, 46: 13-14, 61, May 1913.
"The author of the present article, which formed the basis of an address before the Association of school accounting officers in Philadelphia, February 26, 1913, has had an opportunity, like no other schoolman, of observing the evil effects of municipal interference in school affairs. He writes with the experiences of New York city vividly before him."—Editor.
952. **Rhodes, J. M.** Modern educational ideas in the government of a city as illustrated in Supt. J. M. Rhodes' report, Pasadena, California. *Western journal of education*, 19: 8-10, April 1913.
The four problems of the schools are "(1) To provide adequately and ideally for the accommodation of every child, (2) To arrange to get every child of school age in school and to keep him there and to limit the number of children who may enroll with any one teacher, (3) To put a superior teacher in charge of every school; and to arrange adequately for her continued growth and development, (4) To relate work of the school to the life of the community; but also to lead the people to a higher and simpler plane of living."
953. **Shull, Charles A.** Recent legislation affecting educational institutions in Kansas. *Science*, n. s. 37: 622-24, April 25, 1913.
Opens up a new era in educational administration. New arrangement consists in the application of the commission form of government to all of the state-supported educational institutions.

SCHOOL MANAGEMENT.

954. **Alsop, F. E.** What students want vs. curriculum. *Missouri school journal*, 30: 194-200, May 1913.
955. **Ayres, Leonard P.** The effect of promotion rates on school efficiency. *American school board journal*, 46: 9-11, May 1913.
 "The present article is an excursion into what may be termed 'educational engineering' and shows how small changes in promotion rates have startlingly large results in terms of money and children's time."—Editor.
 Reprinted as pamphlet E 130 of the Russell Sage foundation, New York.
956. **Stoner, D. L.** Examinations; their evils and cure. *Educator-journal*, 13: 377-80, March 1913.

SCHOOL ARCHITECTURE.

957. **Bruce, William C., comp.** High school buildings. *Milwaukee, The American school board journal* [1913] 198 p. 4°.
 A collection of floor plans and photographs of characteristic urban high schools. An effort has been made to select buildings which show a careful adaptation of the plan to the educational work carried on in them, and which, at the same time, follow the best standards of orientation, lighting, etc.
958. **Hennig, ———.** Die Erlweinschen schulbauten in Dresden. *Schulhaus*, 15: 147-76, heft 4, 1913.
 Dresden's beautiful new school buildings are described. Richly illustrated (35 halftones; exteriors, interiors, details, plans).
959. **Schools and colleges built to burn.** *Insurance engineering*, 25: 129-65, 182-3, March 1913. illus.
 A number of articles on the present fire peril in American schools and colleges, each taking up different phases, thus: Effects of Collinwood fire, exits, State regulation, etc.

SCHOOL SANITATION AND HYGIENE.

960. **Czerny, Adalberto.** Il medico educatore del bambino. Libro per i medici, per le madri, per i maestri. Versione dal tedesco con note originali della dottessa. Angiola Borrino e presentazione al pubblico italiano del prof. Pio Foà. Torino, Società tipografico-editrice nazionale, 1913. 173 p. 12°.
961. **Dresslar, Fletcher B.** School hygiene. New York, The Macmillan company, 1913. 369 p. illus. 8°.
 Presents in a simple and untechnical way some of the hygienic requirements of school life, and suggests, whenever it seems necessary, how these requirements may be put into practice. Not written for the specialist in school hygiene, but for busy teachers. Each chapter is followed by appropriate Topics for investigation, and by Selected references.
962. **Schulz, Otto.** Erster deutscher kongress für alkoholfreie jugenderziehung. *Pädagogische zeitung*, 42: 285-7, April 10, 1913.
 A sympathetic review of the efforts of German schoolmen against alcohol.
963. **Stephani, ——— and Wimmenauer, ———.** Schulzahnklinik oder freie zahnarztwahl. *Zeitschrift für schulgesundheitspflege*, 26: 225-43, April 1913.
 Discusses the question whether it is better in oral hygiene in school to organize with school clinic or with private dentists. Writers inclined to be favorable to former method.
964. **Thiele, A.** Die bekämpfung der tuberkulose an den städtischen volksschulen in Chemnitz. *Schularzt (Beilage zur Zeitschrift für schulgesundheitspflege)* 11: 273-75, April 1913.
 A summary of the successful school fight against tuberculosis in Chemnitz since 1900. Methods and organization.
965. **Toepel, Theodore.** The effect of school life on the physical child. *Mind and body*, 20: 89-93, May 1913.
 "Read at the convention of the American physical education association, Newark, N. J., March 1913."
966. **Walker, J. D.** Medical school inspection. *Oklahoma school herald*, 21: 9-11, May 1913.
 "Read before the Pushmataha county teachers' association."

PHYSICAL TRAINING.

967. **Becht, J. George.** A proper playground. *Journal of education*, 77: 429-30, April 17, 1913.
Gives equipment, supervision, and minimum space per pupil.
968. **Corbin, Alice M.** How to equip a playroom—the Pittsburgh plan. *Playground*, 7: 8-15, April 1913.
969. **Curtis, Henry S.** Message of the play movement. *Journal of education*, 77: 455-56, 488, April 24, May 1, 1913.
Address at the North Dakota association.
970. **Dudley, William L.** The proper control of athletics. *American physical education review*, 18: 209-16, April 1913.
"Paper presented at the seventh annual convention of the National collegiate athletic association, New York, December 27, 1912."

SOCIAL ASPECTS OF EDUCATION.

971. **Curtis, Henry S.** The school center. *Survey*, 30: 89-91, April 19, 1913.
972. **Hodges, LeRoy.** Winston-Salem plan of training boys for citizenship. *North Carolina education*, 7: 3-4, May 1913.
The principal characteristics of the plan are "first, cooperation between the public schools and the local board of trade; second, the establishment of a department of government and economics in the city high school; and, third, the formation of a boys' department, or a 'juvenile club,' as it is called, of the board of trade."
973. **Johnson, Eleanor Hope.** Social service and the public schools. *Survey*, 30: 173-78, May 3, 1913.
Shows what is being accomplished in New York city, Boston, etc. Writer says that the day is fast approaching when "just as surely as social service is an inseparable and honored part of both religious and medical institutions, so it shall be of our educational work."
974. **Kühnert, H.** Universität und settlement. *Akademische rundschau*, 1: 428-35, heft 7, 1913.
Describes settlement work in England and America and suggests adaptability to Germany.
975. **Voorhees, George L.** Civic service of the social center. *Educational bi-monthly*, 7: 366-75, April 1913.

CHILD WELFARE.

976. **Astor, Waldorf.** Boy labor and education. *National review*, 61: 358-66, April 1913.
Author says that the evils of boy labor can be traced to the divorce of working life and education. "A boy's work has got into one groove and his education into another."

MORAL AND RELIGIOUS EDUCATION.

977. **Athearn, Walter S.** Standardizing the Sunday school. *Biblical world*, 41: 322-26, May 1913.
Gives standards recently adopted by various religious bodies, and also a new "ten-point standard," proposed as a practical basis.
978. **Doggett, L. L.** Materials and methods for religious education among young men and boys. *Association seminar*, 21: 257-72, April 1913.
979. **Sharp, Frank Chapman.** A course in moral instruction for the high school. 2d ed. Madison, The University, 1913. 244 p. 12°. (*Bulletin of the University of Wisconsin*, no. 565. *High school series*, no. 7.)

MANUAL AND VOCATIONAL TRAINING.

980. **Badger, Ozro B.** High school manual training problems for country boys. *Manual training magazine*, 14: 329-43, April 1913.
Describes conditions in Columbus, Indiana, where the new problem has been "to meet the needs of the pupils from the rural districts." The idea is to help educate these boys back to the farm, enabling them to work more scientifically.
981. **Brereton, Cloudealey.** The character-forming influence of vocational education. *Educational review*, 45: 501-6, May 1913.
Shows the trend of society under the influence of the industrial system. Predicts a recreation of the old guild system on "a wider and more liberal scale, in which every profession and calling would find representation."
982. **Dean, Arthur D.** The up-bringing of a teacher: an open letter to the manual training teachers. *Manual training magazine*, 14: 344-51, April 1913.
983. **Dewey, John.** An undemocratic proposal. *Vocational education*, 2: 374-77, May 1913.
"The short article . . . which we print in this issue first appeared in the *American teacher*. We believe it deserves a wider reading. The author's reasoning is asserted to be fundamental; if sound, its influence will be far-reaching; if fallacious, it should be answered."—Foreword.
Discusses the evils of a separate board of control for vocational education.
984. **Gayler, G. W.** Vocational training as a preventive of crime. *Psychological clinic*, 7: 39-46, April 15, 1913.
985. **Hailman, W. N.** Adjustment of the common school curriculum to the vocational needs of to-day. *School science and mathematics*, 13: 382-91, May 1913.
"Presented at the mid-winter meeting of the Northeastern Ohio section on February 8, 1913."
986. The Hampton institute trade school. I. Carpentry and cabinetmaking. *Southern workman*, 42: 271-79, May 1913. illus.
987. **Heinzig, ———.** Die handwerkskammern, ihre bedeutung und ihr arbeitsgebiet. Die fortbildungsschule (Beilage zur Pädagogischen zeitung) 8: 57-59, April 24, 1913.
Describes the work of the 72 German boards of trade and chambers of commerce in aid of industrial education.
988. **Johnson, George F.** Toys and toymaking. *School-arts magazine*, 12: 581-85, May 1913.
Some suggestions for toymaking in the schoolroom.
989. **Kent, Ernest B.** The industrial arts for boys of the seventh and eighth school years. *Manual training magazine*, 14: 309-21, April 1913.
Gives conditions in Jersey City, N. J. Writer says that while in "the previous grades *industry* has been the subject matter of the course, now for these two years at least, the *boy himself* should become the real subject matter. . . . After the sixth year we should ask, . . . Which boys in a class have latent aptitudes for this or that or the other type of industrial work? Which boys are showing themselves generally unmechanical?" The writer's thesis is that the main duty of the school shop during the sixth and seventh years is "to serve as a laboratory for vocational guidance with respect to the industrial occupations."
990. **Marten, William S.** Inexpensive basketry. Peoria, Ill., The Manual arts press [1913] 45 p. illus. 8°.
References on Educational values of manual training, p. 38-40. Bibliography on Basketry, p. 41-44.
991. **Mühlmann, Karl.** Reiseberichte über das technische und gewerbliche schulwesen Nordamerikas. Chemnitz, J. C. F. Pickenhahn & sohn, 1913. 70 p. 4°.
(Technische staatslehranstalten in Chemnitz. Abhandlungen und berichte. Heft 3, February 1913.)
Narrates observations made during an official tour of inspection in the East and Middle West, in April, May, and June 1912.

992. **Nearing, Scott.** Public schools that are making good: High schools that are in step with life. *Ladies' home journal*, 30: 10, 75-76, May 1913.
Describes work in Newton, Mass.; Gary, Ind.; Grand Rapids, Mich.; New York city, etc. Advocates vocational education.
993. **Prosser, Charles A.** The meaning of industrial education. *Vocational education*, 2: 401-10, May 1913.
This article is condensed from the address delivered at the December convention of the Indiana state teachers' association.
994. **Scott, Jonathan F.** The decline of the English apprenticeship system. *Elementary school teacher*, 13: 445-54, May 1913.
Writer says that it is mainly "to the public school that we must look for a solution of the problem of industrial education." Sketches the history of the craft guild systems.
995. Some public schools that are not failures. III. The Newton vocational school. *Popular educator*, 30: 485-89, May 1913.
996. **Wigge, H.** Welche gefahren liegen für unsere volkschule in der bevorzugung der nebenfächer? *Pädagogische warte*, 20: 430-39, April 15, 1913.
Opposes industrial and other branches in the school on the ground that they interfere with the spirit and organization of the instruction.

VOCATIONAL GUIDANCE.

997. **Ayres, Leonard Porter.** Psychological tests in vocational guidance. New York city, Division of education, Russell Sage foundation, 1913. 6 p. 8°. (Russell Sage foundation. Pamphlets. E128.)
Reprinted from the *Journal of educational psychology*, April 1913.
998. **Bloomfield, Meyer.** The vocational counselor in action. *Survey*, 30: 183-88, May 3, 1913.
Gives a digest of the past performances and future plans of the Vocation bureau of Boston.
999. **Boston, Mass. Vocation bureau.** Record of the Vocation bureau of Boston, 1913. Boston, Mass., 6 Beacon street, 1913. 28 p. 8°.
Meyer Bloomfield, director.
The summer school course in vocational guidance to be given by Harvard university this year may be found on pages 11-12. Other extension courses in vocational guidance offered by Columbia university and by the University of Missouri are outlined on pages 22-23.
1000. **Rodman, Cornelia Benedict.** The work of the vocational counselor. *Journal of education*, 77: 483-84, May 1, 1913.
The author is the vocational counselor at the Somerville, Mass., Trade school for girls.
1001. **Weaver, Eli W.** Getting in touch with the employer. *Journal of education*, 77: 396-98, April 10, 1913.
"Address before National conference on vocational guidance at New York."

AGRICULTURAL EDUCATION.

1002. **Putnam, Helen C.** Children's gardens and life. *Child-welfare magazine*, 7: 158-60, 213-15, 242-45, 296-98, 320-23, January to May 1913.
Gives the various steps in gardening, showing how it brings about normal, easy opportunities of helping children to intelligent as well as wholesome ideas of the renewal of life, heredity, environment, physiologic processes, and even anatomy. The properly trained teacher can coordinate the observations made in gardening with human life.
1003. **Sipe, Susan B.** The teacher and the school garden. *Kindergarten review*, 23: 545-53, May 1913. illus.
School garden work as carried on in Washington, D. C.
1004. **Snedden, David.** The agricultural school. *American school board journal*, 46: 17, 56, May 1913.
"Of the industrial subjects which have recently been added to the curriculum none is more important to a larger number of children than agriculture. Dr. Snedden discusses the fundamental principles which must be observed in making this important study a part of the public-school system in a most popular manner that cannot fail to interest school-board members."—Editor.

HOME ECONOMICS.

1005. **Colwell, Rachel.** A brief description of the way in which domestic science is being introduced in some of the schools of West Virginia. West Virginia educator, 7: 12-13, May 1913.
Describes equipment, etc.
1006. **DeGarmo, Mary E.** School credit for home industrial work through the partnership report card. Atlantic educational journal, 8: 344-46, May 1913.
1007. **Kemsies, Ferdinand.** Zur psychologie und pädagogik der hausarbeiten. Zeitschrift für pädagogische psychologie, 14: 193-206, April 1913.
A timely discussion of homework in its relation to the pupil's waking and working hours.
1008. **Kittredge, Mabel H.** Housekeeping centers in settlements and public schools. Survey, 30: 188-92, May 3, 1913.
Shows the great popularity in New York city of the housekeeping center.
1009. **Lewis, Adah.** Equipment of a domestic science laboratory. Western school journal, 29: 132-33, May 1913.
Gives itemized cost of individual and general equipment, and expense of maintenance of domestic science work in Kansas high schools.

MEDICAL EDUCATION.

1010. **Bevan, Arthur Dean.** The past and future of medical colleges in America. American educational review, 34: 309-12, March 1913.

EDUCATION OF WOMEN.

1011. **Reichl, —.** Können wir auf die obligatorische mädchenfortbildungsschule verzichten? Frauenbildung, 12: 187-94, heft 4, 1913.
Argues the economic and social necessity for the compulsory continuation school for girls.
1012. What we are trying to do. World's work, 26: 50-58, May 1913.
Symposium by 35 teachers of the Washington Irving high school, New York city. Efforts "to make healthy and successful women of city-bred girls."

EXCEPTIONAL CHILDREN.

1013. **Breitwieser, J. V.** The case of the gifted child. Colorado school journal, 28: 20-22, April 1913.
1014. **Flexner, Mary.** The visiting teacher in action. Survey, 30: 179-82, May 3, 1913.
To the visiting teacher is assigned "the group called the *difficult* children, and it is her aim to discover, if possible, the cause of the difficulty which manifests itself in poor scholarship, annoying conduct, irregular attendance, or the need of or desire for advice on some important phase of life." Gives résumé of cases handled by the seven visiting teachers maintained in New York by the Public education association.
1015. **Herndon, Carrie P.** The exceptional child and what we are doing for him.— II. Normal instructor, 22: 22, May 1913.
In the April issue the physically exceptional child was discussed. This number deals with the mentally exceptional.
1016. **New Orleans. Public school alliance.** Exceptional children in the public schools of New Orleans. A report of the committee of the Public school alliance, March, 1913. New Orleans, Public school alliance, 1913. 36 p. 8°.
1017. **Shaer, I.** Special classes for bright children in an English elementary school. Journal of educational psychology, 4: 209-28, April 1913.
"A discussion of the principles of promotion in primary schools."

LIBRARIES AND READING.

1018. **Comstock, Sarah.** Eight million books a year. *World's work*, 26: 100-3, May 1913.
Describes work of the New York public library, its services to foreigners, etc.
1019. **Dracass, Carrie E. Tucker.** Plans for the future of Chicago high-school libraries. *Educational bi-monthly*, 7: 295-304, April 1913.
Read before the English section of the Chicago high and normal school association, May 11, 1913.
1020. **Herbert, Clara W.** Children's reading: The right book at the right time. *Home progress*, 2: 28-31, May 1913.
1021. **Pryne, Marion.** Library work in the high school. *Sierra educational news*, 9: 373-77, May 1913.
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PERIODICALS INDEXED IN THIS NUMBER.

- Akademische rundschau*, Leipzig, Germany.
Allgemeine deutsche lehrerzeitung, Leipzig, Germany.
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American education, 50 State street, Albany, N. Y.
American educational review, 431 S. Dearborn street, Chicago, Ill.
American physical education review, 93 Westford avenue, Springfield, Mass.
American school board journal, 129 Michigan street, Milwaukee, Wis.
Association seminar, Seminar publishing company, Springfield, Mass.
Atlantic educational journal, 19 W. Saratoga street, Baltimore, Md.
Biblical world, University of Chicago press, Chicago, Ill.
Century magazine, Union square, New York, N. Y.
Child-welfare magazine, 227 S. Sixth street, Philadelphia, Pa.
Colorado school journal, 230 Railway Exchange building, Denver, Colo.
Deutsche schule, Leipzig, Germany.
Éducateur moderne, Paris, France.
Education, 120 Boylston street, Boston, Mass.
Educational bi-monthly, Board of education, Chicago, Ill.
Educational foundations, 31-33 E. 27th street, New York, N. Y.
Educational review, Columbia university, New York, N. Y.
Educational times, London, England.
Educator-journal, 403 Newton Claypool building, Indianapolis, Ind.
Elementary school teacher, University of Chicago press, Chicago, Ill.
English journal, University of Chicago press, Chicago, Ill.
Frauenbildung, Leipzig, Germany.
Geographischer anzeiger, Gotha, Germany.
History teacher's magazine, McKinley publishing company, Philadelphia, Pa.
Home progress, Riverside press, Cambridge, Mass.
Insurance engineering, 80 Maiden lane, New York, N. Y.
Internationale monateschrift für wissenschaft, kunst und technik, Berlin, Germany.
Journal of education, 6 Beacon street, Boston, Mass.
Journal of education, London, England.
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Kansas school magazine, Emporia, Kans.
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McClure's magazine, 4th avenue and 20th street, New York, N. Y.
Manual training magazine, Manual arts press, Peoria, Ill.
Mathematics teacher, 41 N. Queen street, Lancaster, Pa.

Mind and body, Herold building, Milwaukee, Wis.
 Missouri school journal, Jefferson City, Mo.
 Monatshefte der Comeniusgesellschaft, Berlin, Germany.
 Monatshefte für den naturwissenschaftlichen unterricht, Leipzig, Germany.
 Nation, Box 794, New York, N. Y.
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 Neue bahnen, Leipzig, Germany.
 Normal instructor, Danville, N. Y.
 North Carolina education, Raleigh, N. C.
 Nuovi doveri, Rassegna di pedagogia, Palermo, Italy.
 Ohio educational monthly, 55 East Main street, Columbus, Ohio.
 Ohio teacher, Box 326, Athens, Ohio.
 Oklahoma school herald, Oklahoma City, Okla.
 Oregon teachers monthly, Salem, Oreg.
 Outlook, 287 4th avenue, New York, N. Y.
 Pädagogische warte, Leipzig, Germany.
 Pädagogische zeitung, Berlin, Germany.
 Pädagogisches archiv, Braunschweig, Germany.
 Parents' review, London, England.
 Pennsylvania school journal, Lancaster, Pa.
 Playground, 1 Madison avenue, New York, N. Y.
 Popular educator, 50 Bromfield street, Boston, Mass.
 Popular science monthly, Sub-station 84, New York, N. Y.
 Primary education, 50 Bromfield street, Boston, Mass.
 Progressive teacher, Nashville, Tenn.
 Psychological clinic, Woodland avenue and 36th street, Philadelphia, Pa.
 Psychological review, 41 N. Queen street, Lancaster, Pa.
 Quarterly review, London, England.
 Revue de l'enseignement des langues vivantes, Paris, France.
 Revue universitaire, Paris, France.
 Rivista pedagogica, Rome, Italy.
 Rural educator, Ohio State university, Columbus, Ohio.
 School and home education, Bloomington, Ill.
 School-arts magazine, 120 Boylston street, Boston, Mass.
 School news and practical educator, Taylorville, Ill.
 School review, University of Chicago press, Chicago, Ill.
 School science and mathematics, Mount Morris, Ill.
 School world, London, England.
 Schulhaus, Berlin, Germany.
 Science, Sub-station 84, New York, N. Y.
 Sierra educational news, 50 Main street, San Francisco, Cal.
 Southern workman, Hampton, Va.
 Survey, 105 E. 22d street, New York, N. Y.
 Texas school journal, 1927 Main street, Dallas, Texas.
 Vocational education, Manual arts press, Peoria, Ill.
 West Virginia educator, Charleston, W. Va.
 Western journal of education, 324 Phelan building, San Francisco, Cal.
 Western school journal, Topeka, Kans.
 Westminster review, London, England.
 Wisconsin journal of education, Parker educational co., Madison, Wis.
 World's work, Doubleday, Page & Co., Garden City, N. Y.
 Wyoming school journal, Laramie, Wyo.
 Zeitschrift für geschichte der erziehung und des unterrichts, Berlin, Germany.
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BULLETIN OF THE BUREAU OF EDUCATION.

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- No. 18. Teachers' certificates (laws and regulations). Haslan Updegraff.
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BIBLIOGRAPHY OF INDUSTRIAL, VOCATIONAL, AND TRADE EDUCATION



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LETTER OF TRANSMITTAL.

DEPARTMENT OF THE INTERIOR,
BUREAU OF EDUCATION,
Washington, D. C., March 29, 1913.

SIR: In this country and abroad there is a general and increasing interest in industrial education and in the various forms of vocation and trade schools. Teachers, school boards, civic organizations, manufacturers, trades-unions, city and State officials are working apart and together to formulate some practical program whereby this type of education may be given in the best and most economic way. In many foreign countries, and in several States and cities of this country, marked progress has been made. The literature on the subject has been so abundant and varied that there is need for an annotated list of the more important books, reports, articles, and periodicals that have appeared within the last few years. I therefore recommend for publication as a bulletin of this bureau the accompanying manuscript prepared by Henry R. Evans of the Editorial Division, assisted by members of the library staff.

Respectfully submitted.

P. P. CLAXTON,
Commissioner.

The SECRETARY OF THE INTERIOR.

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In the introduction the author lays down certain fundamentals which he says "must soon be clearly recognized and brought into and made a part of our educational ideals, policies, and methods." If we are to have universal education, it must contain a large element of the vocational. He writes: "We must agree that in a system of universal education the best results will always follow when as many subjects as possible and as many vocations as may be are taught together in the same school, under the same management, and to the same body of men."

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CONTENTS.—1. Significance of the movement for industrial education. 2. Manual training and industrial education. 3. The demand—an analysis. 4. The demand of organized labor. 5. The demand of educators. 6. The demand of social workers. 7. The revision of educational ideals involved in the movement for industrial training. 8. A plan for immediate reorganization. 9. Examples of more fundamental reorganization. 10. Prevocational work in grades 6-8. 11. The intermediate or separate industrial school. 12. Vocational high schools. 13. The trade school. 14. Part-time co-operative schools. 15. The continuation school. 16. Vocational guidance. 17. State legislation. 18. Concerning agricultural education.
Chapter 8 presents a plan for meeting "the immediate needs of the present generation of school children without modifying, in any radical way, the prevailing systems of school organization."
86. ——— Some sociological phases of the movement for industrial education. American journal of sociology, 18: 352-60, November 1912.
Emphasizes the fact that the industrial education movement is bound to have a profound effect on the whole system of popular education. Discusses vocational education in all its phases.

87. Lee, Joseph. The boy who goes to work. Educational review, 38: 325-43, November 1909.

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88. Lindsay, Samuel McCune. New duties and opportunities for the public schools. Social education quarterly, 1: 79-92, March 1907.

Industrial education and child labor.

89. McAndrew, William. Industrial education from a public school man's point of view. Educational review, 35: 109-28, February 1908.

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90. McDaniel, C. H. The Hammond plan. What one city is trying to do. American school board journal, 45: 13-14, December 1912.

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91. McGahey, C. B. The young American workman as seen by a shop superintendent. Engineering magazine, 35: 384-86, June 1908.

Recommends trade schools as a remedy for defective home and union training.

92. Massachusetts. Board of education. Independent industrial schools. In its Annual report, January 1910. p. 137-53.

Schools by name. Conditions in 16 cities and towns.

93. Matheson, K. G. Some thoughts concerning the effect of technical education upon the prosperity of the South. In Georgia educational association. Proceedings and addresses, 1910. Macon, Georgia, Anderson printing co., 1910. p. 59-69.

"Our exhaustless resources can never be fully developed until the best technical, industrial, and agricultural education possible is put within the reach of every Southern boy and girl."

94. Miles, H. E. Work and citizenship. The Wisconsin experiment in industrial education. Survey, 29: 682-85, February 15, 1913.

"By the Wisconsin law the local industrial schools are in the control of a committee consisting of two employers, two employees, and the city superintendent. This union of the social forces most interested becomes a new social leaven and is directly responsible for splendid results. It can not be said which is happiest and most devoted to the work, the employees, the parents, the employers, the school teachers, or the pupils."

Describes conditions in other states.

For a reply to this see Dewey, John. Industrial education and democracy. Survey, 29: 570-71, 893, March 22, 1913.

95. Miller Leslie W. The claims of industrial art, considered with reference to certain prevalent tendencies in education . . . Boston, School of printing, North-end union, 1908. 15 p. 12°.

Address before the Philobiblon club of Philadelphia, February 27, 1908.

96. Münsterberg, Hugo. Psychology and industrial efficiency. Boston and New York, Houghton Mifflin company, 1913. 321 p. 8°.

Shows the value of psychological tests. But notwithstanding the value of laboratory methods for determining industrial efficiency, the writer thinks that vocational guidance, if it shall ever be a closed and perfected system, will yet demand the supplementary services of the labor investigator the sanitary expert, etc. This book is well reviewed in the Survey, 30: 95-96, April 19, 1913.

97. Munroe, James P. New demands in education. New York, Doubleday, Page and co., 1912. 312 p. 8°.

Contains chapters on industrial education, vocational training, and manual training. Author does not consider it the function of the public school to impart strictly trade processes, but to develop good morals, good health, power of concentration, manual power, and command of the tools of communication. He advocates trade schools.

98. Musselman, H. T. The work of the College of industrial arts. Texas school magazine, 15: 7-9, December 1912.

Describes what is being done at the College of industrial arts at Denton, Texas.

99. Nearing, Scott. Social adjustment. New York, The Macmillan company, 1911. xvi, 377 p. 12°.

Discusses, among other social questions, the educational remedies for maladjustment.

100. ——— Industrial education. *In his* Biennial report, 1909-1911 [Lincoln, 1911] p. 113-313. illus.
Conditions in Nebraska.
101. Ogden, Robert C. Industrial education from a layman's point of view. *In* New York (State) University convocation, 1905. Albany, New York (State) Education department, 1906. p. 51-58. (Department bulletin no. 3)
A plea for a broader and more scientific approach to the problem.
102. Orr, Fred J. Manual arts in rural schools. *In* Southern educational association. Journal of proceedings and addresses, 1905. p. 178-87.
Also in Southern educational review, 3: 882-92, April-May 1906.
103. Owens, C. J. Secondary industrial education in Alabama. *In* Alabama educational association. Official proceedings, 1909. p. 138-46.
A course of study based on an elementary course of seven grades, p. 141-43.
104. Paddelford, Fred L. Short addresses on Industrial training, The American boy (Handle with care); Thanksgiving; Industry the golden pass key. Golden, Colorado [The Industrial school press, 1909] [72] p. 24°.
105. Page, Walter H. The unfulfilled ambition of the South. *In* Conference for education in the South. Proceedings, 1904. New York, Issued by the Committee on publication, 1904. p. 98-110.
106. Person, Harlow Stafford. Industrial education; a system of training for men entering upon trade and commerce. Boston & New York, Houghton, Mifflin and company, 1907. 86 p. 8°. (Hart, Schaffner & Marx prize essays)
Deals with the training required by young men who would fit themselves for the higher positions in industry or commerce, and the need of providing such training in the United States. The need is now generally admitted. The author's opinion clearly is that while commercial training should be offered in high schools, collegiate courses, and professional departments, the ideal conditions can be found only in distinctly professional instruction, open solely to those who have already completed a liberal education. The question here raised is a large one, about which, as is well known, there is serious difference of opinion.
"It sets forth briefly the economic conditions which hold in the kingdom of Wurtemberg, the natural resources of the country, and the system of transportation. It then traces the development in this environment of the system of industrial schools and the service which they render in the upbuilding and maintenance of the State."
It also includes a brief description of other industrial and commercial schools of the kingdom, and an outline of the activities of the Wurtemberg central bureau for industry and commerce.
107. Pritchett, Henry S. The place of industrial and technical training in popular education. Educational review, 23: 281-303, March 1902.
Discusses the growth of the higher technical education; demand for industrial training in elementary education; opportunities offered in Boston; solution of the problem in Berlin.
108. Prosser, Charles A. Facilities for industrial education. American school board journal, 45: 11-12, 58, September 1912.
"The above address was delivered before the Department of school administration during the recent meeting of the National education association. It is remarkable in that it embodies a wealth of practical suggestions. Heretofore conjecture has been the order of the day."—Editor's note.
109. ——— Facilities for industrial education. Vocational education, 2: 189-203, January 1913.
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110. Richards, Charles R. Industrial training; a report on conditions in New York State. Albany, State department of labor, 1909. 394 p. 8°. (New York. Bureau of labor statistics. 26th annual report for 1908, Part 1)
Bibliography: p. 357-64.
CONTENTS.—General summary.—Conditions of entrance and advancement in individual industries.—Attitude of labor unions toward industrial and trade schools.—Comments by employers on industrial training.—Rules and agreements of labor unions in regard to apprentices and helpers.—Laws of New York State relating to child labor, compulsory education, apprenticeship, and industrial education.—Institutions offering courses in industrial training in New York State.

111. ——— The problem of industrial education. *Manual training magazine*, 8: 125-32, April 1907.
Brief analysis of the economic, social, and educational aspects of the problem, with a statement of the functions and limitations of the various existing agencies for industrial training.
112. ——— Progress in industrial education during the year 1910-11. In U. S. Bureau of education. Report of the Commissioner for the year 1911. v. 1. Washington, Government printing office, 1912. p. 299-311.
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113. Robinson, James Harvey. The significance of history in industrial education. *Educational bi-monthly*, 4: 376-89, June 1910.
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114. Robinson, Theodore W. The need of industrial education in our public schools. In National education association of the United States. Journal of proceedings and addresses, 1910. p. 369-73.
115. Rogers, Howard J. The relation of education to industrial and commercial development. *Educational review*, 23: 490-502.
Discusses national development in material progress; the struggle for commercial and industrial supremacy, etc. Our system of public education. Contrasts American with foreign conditions in regard to the working classes.
116. Routten, William W. Industrial education in our common schools. In Alabama educational association. Proceedings, 1911. p. 83-87.
117. Russell, James Earl. Discussion on how to fit industrial training into our course of study. In New York (State) University convocation, 1906. Albany, New York (State) Education department, 1906. p. 59-67 (Department bulletin no. 3)
118. ——— The point of view in industrial education. In New York state teachers' association. Proceedings, 1909. Albany, University of the state of New York, 1910. p. 8-19. (Education department. Bulletin no. 483, November 15, 1910)
119. ——— The school and industrial life. *Educational review*, 38: 433-50, December 1909.
A plea for industrial training. Regards it as "essential to the well-being of a democracy."
120. Schneider, Herman. Fundamental principles of industrial education. [New York, * 1909] 307-16 p. 8°.
A paper to be presented at a special meeting of the American institute of electrical engineers, New York, April 16, 1909.
Subject to final revision for the Transactions.
121. Shadwell, Arthur. Industrial efficiency. A comparative study of industrial life in England, Germany and America. New ed. London, New York [etc.] Longmans, Green, and co., 1909. xx, 720 p. 8°.
Contains a critical analysis and comparison of the organization, ideals and methods of public elementary education in England, Germany, and the United States. Chapter xvii treats directly of technical education, describes schools for industrial and technical instruction, emphasis being laid especially on the schools of Germany and England, and the effect of these schools on the industrial problem. An illuminating book on many points. Gives a searching study of social conditions in the three countries.
122. [Symposium] Social education quarterly, June, 1907. 97 p. 8°.
Contains: 1. The place of industrial education in the common school system, by F. P. Fish. 2. Industrial education in a prairie state, by E. B. Andrews. 3. American industrial training as compared with European, by F. A. Vanderlip. 4. The problem of industrial education, by C. R. Richards. 5. The needs from the manufacturers' standpoint, by M. W. Alexander. 6. The importance of industrial education to the workman, by John Golden. 7. Bearings of industrial education upon social conditions, by R. A. Woods.

123. Symposium: The place of industries in public education. *In National education association of the United States. Journal of proceedings and addresses, 1908. p. 155-77.*

Articles by J. E. Russell, E. C. Elliott, J. F. McElroy, etc. Dr. Elliott gives an interesting presentation of the philosophy underlying public education. He says that until we possess "reliable data upon which to base a rational scheme of reorganization, the public schools cannot hope to become instruments for 'industrial determination'; neither will they cease to prevent the present positive misselection of individuals for their proper station of efficiency and happiness."

Mr. McElroy cites statistics of attendance in grammar schools of Albany, N. Y., to show a very rapid decrease in enrollment. Advocates industrial continuation schools.

124. Turner, Kate E. What shall I do after high school? *Ladies' home journal, 29: 10, 76, April 1912.*

Describes the various professional and industrial channels open for girls, and their requirements.

125. United States. Bureau of education. Industrial education in the United States. *In its Annual report of the Commissioner for the year 1910. v. 1. Washington, Government printing office, 1910. p. 223-53.*

General review. Statistics of schools in this country which offer training for specific vocations in the industries. For reviews of manual and industrial training in the United States see previous reports of the Bureau, from 1906 to 1909.

126. ——— Bureau of labor. 17th Annual report of the United States Commissioner of labor, 1902. Washington, Government printing office, 1902. 1333 p. 8°

An exhaustive compilation of material regarding trade and technical education in the United States. Describes institutions for industrial education in the United States. Chapter 2 deals with the attitude of employers, graduates and labor unions towards such institutions. A study is made of industrial education in Austria, Belgium, Canada, France, Germany, Great Britain, Hungary, Italy and Switzerland.

A synopsis of the report, prepared for the exhibit of the bureau at the Louisiana purchase exposition, is contained in Bulletin no. 54, of the U. S. Bureau of labor. Washington, September, 1904. p. 1369-1417. The text is copiously illustrated.

127. ——— Industrial education. *In its Annual report of the Commissioner of labor, 1910. Washington, Government printing office, 1911, 822 p. 8°.*

Bibliography: p. 519-39.

Comprehensive study of industrial education in all its phases. Discusses at length apprenticeship schools; vocational guidance; legislation regarding industrial education, etc. "The data for this report were gathered mainly by special agents of the Bureau of labor on a schedule of inquiries. The information was collected during the latter half of the year 1910 and relates to conditions at that time. . . . A very few schedules were secured by correspondence."

Chapter xviii contains voluminous statistics of Trades and subjects taught and time devoted to schoolroom work and to practice.

128. ——— Conditions under which children leave school to go to work.

In its Report on condition of women and child wage-earners in the United States. Washington, Government printing office, 1910. v. 7. 309 p. 8°. (61st Cong., 2 sess. Senate. Document no. 645)

CONTENTS.—1. Reason for leaving school and going to work. 2. Circumstances possibly influential in causing children to leave school. 3. Industrial experience of children. 4. Legal conditions affecting the employment and school attendance of children. 5. Retardation, repeating, and elimination.

An intensive study of 622 children in seven different localities, taken from two northern and two southern states. Domestic, educational, industrial, legal, social and hygienic conditions discussed. Throws light on the difficulty experienced by boys in securing chances to learn trades.

129. [Van Cleave, James Wallace] Industrial education as an essential factor in our national prosperity. Washington, Printed for private distribution by Mrs. A. M. Wilcox [1908?] 8 p. 8°.

Speech delivered at the annual banquet of the National society for the promotion of industrial education, Chicago, January 23, 1908.

Advocates free industrial high schools, fully equipped, to be open night as well as day to the boys who have taken the manual training course in the primary schools. "Manifestly no apprenticeship system in the United States ever had or which it ever could invent would enable us to rise to the demands of the present and the approaching situation."

130. Walker, Hugh. Are "the brains behind the labour revolt" all wrong? *Hibbert journal*, 11: 348-65, January 1913.
Incidentally discusses industrial education as a remedial agency for many of the social ills. Explains how the state by a system of industrial training, prolonging the period of instruction to about 18 years, would solve the baffling problem of "blind-alley employments." Says: "The breeding of men who can not earn their own living is as costly as it is morally disastrous; and the present system, which, at the close of the school period, turns thousands of children on to the streets, there to make a precarious living for a few years, inevitably produces that result." Shows the wonderful results accomplished in Munich, Germany, by industrial education.
131. White, Frank B. Industrial education in the Philippine islands. *Vocational education*, 2: 265-77, March 1913.
To be continued. The Philippine Bureau of education has aimed "to turn the pupils directly and normally from the public schools into an industrial life which would enable them to more adequately meet their growing needs." Illustrated.
132. Wild, Laura H. Training for social efficiency: the relation of art, industry and education. *Education*, 32: 226-33, 343-53, 494-504, 624-35, December 1911; February, April and June 1912; 33: 91-99, 159-65, 208-22, October, November and December 1912.
A plea for efficiency, not based upon skill in producing "the largest output, in making the biggest and most brilliant showing, but as ability to do something which the world wants in a superior way."
133. Winston, George T. Industrial education and the new South. *In* U. S. Bureau of education. Report of the Commissioner for the year 1901. v. 1. p. 509-13.
An address delivered at the tenth annual meeting of the Southern education association, Richmond, Va., December 27-29, 1900.
134. Wood-Simons, May. Industrial education in Chicago. *Pedagogical seminary*, 17: 398-418. September 1910.
Bibliography: p. 417-18.
135. Woodward, Calvin Milton. The logic and method of industrial education. *In* North Central association of colleges and secondary schools. Proceedings, 1910. Chicago, Published by the Association, 1910. p. 3-23.

IV. INDUSTRIAL EDUCATION IN FOREIGN COUNTRIES.

GENERAL.

136. Gibson, Carleton B. Recent tendencies toward industrial education in Europe and America. *In* Southern educational association. Journal of proceedings and addresses, 1908. p. 157-66.
Also in *Southern educational review*, 6: 275-84, February-March 1909.
137. Kreuzpointner, Paul. The new standard of the present day industrial education in Europe. *American school board journal*, 43: 15-17, September 1911.
"We have as a new standard in the present system of industrial education in Europe, a growing power of the state over the organization of such schools, the extension of the compulsory feature of attendance at industrial schools, under eighteen years of age, and a vast increase of expenditures by the state and the municipalities over former years—for the education of the masses of industrial workers."
138. Ware, Fabian. Educational foundations of trade and industry. New York, D. Appleton & co., 1901. 293 p. 8°.
Treats of the situation in England, Germany, France and America. Gives an adequate presentation of American school conditions with reference to the effect of American ideals and form of school organization upon industrial affairs.
139. Winalow, Charles H. Report on the relations of European industrial schools to labor. Boston, Wright & Potter printing co., 1908. 22 p. 8°.
(Massachusetts. Commission on industrial education. Bulletin no. 10)

GREAT BRITAIN.

140. Great Britain. National conference on industrial training of women and girls, London, October 6, 1908. Report.

ENGLAND.

141. London. County council. Education committee. The apprenticeship question. Report . . . London, printed for the London county council, 1906. 45 p. F°. (London. County council. [Publication] no. 925)
Chairman, R. A. Bray.
142. ——— Technical education board. Report of the special sub-committee on technical instruction for women. (Presented to the Technical education board, 7th December, 1903) [London] J. Truscott and son, 1903. 23 p. F°. Chairman, J. R. Macdonald.
143. ——— School board. Report (prepared under the direction of the late school board for London) with regard to industrial schools, 1870 to 1904. [London] Alexander & Shephard [1904] 56 p. plates. F°. London. County council.
144. Magnus, Philip. Industrial education in England. In Roberts. Education in the nineteenth century. New York, Macmillan, 1901. p. 140-70.

SCOTLAND.

145. Hatch, Henry D. Some observations on Scottish public educational provisions for promoting the life careers of pupils leaving school. Educational bi-monthly, 7: 203-21, February 1913.
Shows the work of the juvenile branch of the Board of trade labour exchange in the school board offices, Edinburgh.

CANADA.

146. Manitoba. Royal commission on technical education and industrial training. Report . . . August 26, 1910. Winnipeg, Manitoba, 1912. 78 p. illus. 8°.

Many manufacturers, contractors, and skilled mechanics representing the various trades appeared before the Commission. "From whatever point of view the witnesses spoke, they were one in saying that the conditions to be met required the establishment of some well-considered scheme of vocational training based upon and accompanied by the essentials of a good general education."

Contains a résumé of the aims and methods of industrial education in educational centers in the United States and Eastern Canada.

147. Ontario. Education department. Education for industrial purposes. A report by John Seath, superintendent of education for Ontario. Printed by order of the Legislative assembly of Ontario. Toronto, L. K. Cameron, 1911. 390 p. illus. 4°.

Writer, in introduction, says that the present importance of the problem of industrial education is the result of three main causes: "1. The rivalry amongst the nations for commercial supremacy. 2. The imperfect provision for training skilled workmen. 3. The modern extension of the scope of education to include vocational as well as cultural training, administered and maintained wholly or largely at the public expense."

Describes conditions in Ontario, England, Scotland, France, Switzerland, Germany and United States.

See also National association of education officers. Education in relation to industry. A report on technical, trade, applied art, manual training, domestic, commercial, and public schools in Canada and the United States. By the following commission on behalf of the National association of education officers: W. P. Donald, J. B. Johnson, J. E. Pickles, Percival Sharp. Leeds, Glasgow and Belfast, E. J. Arnold & son [1912] ix, 187 p. 8°.

This representative commission of English chief education officers visited Canada and the United States in the summer of 1911, to investigate the relationship existing between the educational institutions and the industrial and commercial occupations of the people. A stay of several days was made in turn in Quebec, Montreal, Ottawa, Toronto, Detroit, Buffalo, Philadelphia, New York, and Boston, and a short visit was paid by one of the members to Chicago and St. Louis.

NEW SOUTH WALES.

148. **New South Wales.** Commission on primary, secondary, technical, and other branches of education. Report of the commissioners on agricultural, commercial, industrial, and other forms of technical education . . . Sydney, William A. Gullick, government printer, 1905. 853 p. illus. F°.

A voluminous report, describing conditions in New South Wales, Europe and America.

"The aim of this report is to disclose the state of trade, commercial, agricultural, technical and industrial education generally, both in its lower and higher forms, and the state of the relation of these to the development of a state university. . . . Throughout, the commissioners have attacked their task from what may be called the comparative standpoint."

GERMANY.

149. **Beckwith, Holmes.** German industrial education and its lessons for the United States. Washington, Government printing office, 1913. 8°. (U. S. Bureau of education. Bulletin no. 19)

150. **Blondel, Georges.** L'éducation économique du peuple allemand. 2. ed. augm. Paris, L. Larose et L. Tenin, 1909. xxiv, 156 p. 12°.

CONTENTS.—1. Évolution des idées en matière d'enseignement. 2. Les écoles industrielles. 3. Les écoles commerciales.—Les écoles de perfectionnement. 4. Les créations auxiliaires des écoles.

151. **Damm, Paul Friedrich.** Die technischen hochschulen Preussens. Berlin, E. S. Mittler und sohn, 1909. viii, 324 p. 4°.

152. **Great Britain.** Foreign office. Germany. Report on technical instruction in Germany: supplementary and miscellaneous. Presented to both houses of Parliament by command of His Majesty, March, 1905. London, Printed for H. M. Stationery office, by Harrison & sons, 1905. 78 p. 8°. (Parliament. Papers by command. Cd. 2237-11)

Report by Frederick Rosa.

153. **Howard, Earl D.** The cause and extent of the recent industrial progress of Germany. Boston and New York, Houghton Mifflin co. [1907] xiii, 147 p. 8°. (Hart, Schaffner & Marx prize essays. I)

Bibliography: p. [xj]-xiii.

In a chapter on industrial education stress is laid upon the intimate relation of school training to vocation. The character and extent of the general and industrial continuation schools are described.

Contains a résumé of industrial conditions in Germany before 1871; shows the remarkable progress made subsequent to that date. The relation of school training to the intended vocation is treated.

154. **Lexis, W. H. B. A.** vi. Technical high schools. vii. High schools for special subject. viii. Middle and lower professional schools. In *his* General view of the history and organization of public education in the German empire; tr. by G. J. Tamsen. Berlin, A. Asher & co., 1904. p. 114-82.

155. ———. Das technische unterrichtswesen. Berlin, A. Asher & co., 1904. 3 parts. 8°. (Das unterrichtswesen im deutschen reich. Band 4)

CONTENTS.—1. teil. Die technischen hochschulen. 2. teil. Die hochschulen für besondere fachgebiete. 3. teil. Der mittlere und niedere fachunterricht.

156. **Maennel, Bruno.** The auxiliary schools of Germany. Six lectures . . . Trans. by Fletcher B. Dresslar. Washington, Government printing office, 1907. 137 p. 8°. (U. S. Bureau of education. Bulletin no. 3, 1907)

Bibliography: p. 126-31.

The original work is entitled "Vom hilfsschulwesen: Sechs vorträge von Dr. B. Maennel, rektor. Druck und verlag von B. G. Teubner in Leipzig, 1906." 140 p. 8°. It forms the 73d volume of the series, "Aus natur und geisteswelt: Sammlung wissenschaftlich-gemeinverständlicher darstellungen." The work is dedicated to W. Rein, Ph. D., Litt. D., professor of pedagogy in the University of Jena.

157. **Massachusetts. Commission on industrial education.** Industrial continuation schools for gardeners' apprentices, Munich. Boston, Wright & Potter printing co., state printers, 1907. 6 p. 8°. (*Its Bulletin* no. 6)
 Gives history of the origin of the school, plan of organisation, statistics, etc. The instruction covers the whole business of the gardener, including industrial arithmetic and bookkeeping, civics, botany, reading, and drawing.
158. ——— Industrial continuation schools for machinists' apprentices, Munich. Boston, Wright & Potter printing co., state printers, 1907. 12 p. 8°. (*Its Bulletin* no. 3)
 The instruction in physics and machinery, as well as in materials and shop work, is given by a skilled machinist, the remaining instruction is undertaken by teachers of the common and continuation schools.
159. ——— Industrial continuation schools for mechanics' apprentices, Munich. Boston, Wright & Potter printing co., state printers, 1907. 15 p. 8°. (*Its Bulletin* no. 4)
 Apprentices, who during their four years of required attendance on the school have not done well, may be required, upon the solicitation of their master or of the school, to attend all or part of the instruction in any one class.
160. **Meyer, Ernest C.** Germany's work in the field of trade teaching. In National society for the promotion of industrial education. Proceedings [1909] New York, 1910. p. 156-63.
161. ——— Industrial education and industrial conditions in Germany. Washington, Government printing office, 1905. 323 p. 8°. (U. S. Department of commerce and labor. Bureau of statistics. Special consular reports. v. 33)
 Bibliography: p. 145-47.
 An elaborate and exhaustive study of the subject. The appendices contain descriptions of schools in France; Zittau, Germany; Japan and London.
162. **Monaghan, J. C.** Industrial education in Germany. In New York (State) University convocation, 1900. Albany, University of the state of New York, 1900. p. 187-208. (Regents bulletin, no. 51, October 1900)
 Discussion: p. 208-12.
163. **Roman, Frederick W.** Control of the industrial schools of Germany. Elementary school teacher, 13 : 269-73, February 1913.
 Owing to the dual school organisation in Prussia, there has been a conflict of interests between the clerical party and those interested in industrial education. The clericals want "a guaranty that one hour per week shall be given over to their hands for religious instruction. The other party claims that religious teaching has no place in a trade school. As it is now, only the districts or communes can make attendance compulsory. The result is that for the most part Prussia has only voluntary trade-school attendance."
 The author says that two public-school systems in the same city create jealousy. The interests of the people are divided; a feeling of class division in society exists, thus undermining democracy. Munich leads all German cities in its trade-school development, because it has a united school system. Describes conditions in the states of Wurtemberg and Baden, which were the first to develop industrial schools.
164. ——— Die deutschen gewerblichen und kaufmännischen fortbildungs- und fachschulen und die industriellen, kommerziellen schulen in den Vereinigten-Staaten von Nord-Amerika. Ein vergleich. Leipzig, Duncker & Humbolt, 1910. x, 214 p. 8°.

A comparison between German continuation schools and industrial schools in the United States.
165. **Snowden, Albert A.** The industrial improvement schools of Wurtemberg, together with a brief description of the other industrial schools of the kingdom . . . Teachers college record, 8 : 1-79, November 1907.
 Contains: 1. The place of vocational training in the kingdom, p. 1-21. 2. The rise of vocational schools, p. 23-34. 3. The reorganization of the industrial improvement schools, p. 34-48. 4. The industrial school of Stuttgart, and the commercial schools, p. 48-57. 5. Other industrial schools, and the Central bureau for industry and commerce, p. 57-72.
 A résumé of the economic conditions in Wurtemberg, one of the smaller kingdoms of the German empire. Records the development of the system of industrial schools and what they have done in up-building the state.

166. **United States.** Department of commerce and labor. Bureau of statistics. Industrial education and industrial conditions in Germany. Washington, Government printing office, 1905. 323 p. illus. 8°. (Special consular reports. v. 33)

Industrial education: p. 5-147.

A comprehensive survey of the subject. Contains a study of the administration of industrial education. Describes the various schools, methods of instruction, curricula, and the attitude of the people and government toward industrial education in general. For discussion of continuation schools, see p. 145-47.

FRANCE.

167. **Astier, P. and Cuminal, I.** L'enseignement technique, industriel et commercial en France et à l'étranger. Paris, 1909.
168. **Le Blanc, René.** L'enseignement professionnel en France au début du *xx*^e siècle. Paris, E. Cornely et cie., 1905. 338 p. 12°.
169. ——— La réforme des écoles primaires supérieures. Paris, Librairie Larousse [1907] 216 p. illus. 8°.
"Enseignement technique primaire, agricole, industriel, commercial, maritime, ménager."
170. **Paquier, J. B.** L'enseignement professionnel en France; son histoire.—Ses différentes formes, ses résultats. Paris, A. Colin, 1909. 342 p. 12°.

BELGIUM.

171. **Belgium.** Ministère de l'industrie et du travail. Rapport général sur la situation de l'enseignement technique en Belgique . . . 1902-1910. Bruxelles, Office de publicité, J. Lebègue et cie. [etc] 1912. 2 v. 8°.
Volume I contains a résumé of industrial, commercial, and domestic education in Belgium, followed by elaborate presentations of each subject. Volume II gives statistical details regarding courses in commerce and languages; industrial arts schools; apprenticeship, etc.
172. ——— Rapport sur la situation de l'enseignement technique en Belgique, 1897-1901. Bruxelles, Lebègue et cie. [etc] 1903. 2 v. 8°.
173. **Carton de Wiart, Henry.** L'enseignement pour la vie et l'introduction d'un quatrième degré d'études dans l'instruction primaire. Conférence donnée à l'École supérieure commerciale et consulaire à Mons le 15 mai 1911. Bruxelles, Impr. "La Rapide," 1911. 22 p. 8°.

ITALY.

174. **United States.** Commissioner of labor. Trade and technical education in Italy. In his 17th annual report, 1902. Washington, 1902. p. 1169-1212.

RUSSIA.

175. **Baker, James.** [Technical education] in Russian Poland. In his Report on technical and commercial education in East Prussia, Poland, Galicia, Silesia, and Bohemia. London, Wyman and sons, 1900. p. 22-28.
176. **Great Britain.** Board of education. [Technical and industrial education in Russia] In its Education in Russia. London, Wyman and sons, 1909. p. 136-39, 200-204, 460-504. (Special reports on educational subjects. v. 23)

LATIN AMERICA.

177. **Brandon, Edgar Ewing.** Industrial education [in Latin America] In his Latin-American universities and special schools. Washington, Government printing office, 1913. p. 115-25. 8°. (U. S. Bureau of education. Bulletin no. 30, 1912)

V. ASSOCIATIONS, COMMITTEES, AND COMMISSIONS.

ASSOCIATIONS AND COMMITTEES.

178. **American academy of political and social science, Philadelphia.** Industrial education. Philadelphia, American academy of political and social science, 1909. iii, 224 p. 4°. (The annals of the American academy of political and social science. vol. XXIII, no. 1)

CONTENTS.—Relation of industrial education to national progress [by] B. T. Washington.—The work of the National society for the promotion of industrial education [by] C. D. Wright.—Vocational training and trade teaching in the public schools [by] J. P. Haney.—Elementary trade teaching [by] C. H. Morse.—The Secondary industrial school of Columbus, Georgia [by] C. B. Gibson.—Partial time trade schools [by] H. Schneider.—Public evening schools of trades [by] G. F. Warner.—The short course trade school [by] J. E. G. Yalden.—The Milwaukee school of trades [by] C. F. Perry.—The Philadelphia trades school [by] W. C. Ash.—The Manila trade school [by] J. J. Eaton.—Technical education at the Polytechnic institute, Brooklyn [by] F. W. Atkinson.—The work of the Pennsylvania museum and school of industrial art [by] L. W. Miller.—The Berean school of Philadelphia and the industrial efficiency of the negro [by] M. Anderson.—The industrial training of women [by] Florence M. Marshall.—The relative value and cost of various trades in a girls' trade school [by] Mary S. Woolman.—The apprenticeship system of the General electric company at West Lynn, Massachusetts [by] M. W. Alexander.—The John Wanamaker commercial institute—a store school [by] J. Wanamaker.—Trade teaching in the boot and shoe industry [by] A. D. Dean.—The apprentice system on the New York central lines [by] C. W. Cross.—Apprenticeship system at the Baldwin locomotive works, Philadelphia [by] N. W. Sample.—Trade teaching under the auspices of the Typographical union [by] W. B. Prescott.—The position of labor unions regarding industrial education [by] J. Golden.—Book Department.

179. **American foundrymen's association.** Committee on industrial education. Report . . . Toronto convention, June 8-12, 1908 . . . [n. p.] 1908. 7 p. 8°.

P. Kreuspointner, chairman.

Summarises the conclusions of the Committee under eight heads. Says: ". . . Industrial education and trade training must not only consider the mechanical and technical necessities of the mechanic, but also the culture and moral aesthetic side of life of the man and citizen.

"That manual training, as now conducted, is too exclusively devoted to the acquisition of manual dexterity, but if broadened and deepened and made more technical by the addition of suitable subjects, it can be made an excellent foundation for industrial education, and become a preparation for trade training." Recommends a system of specific trade schools, the burden of conducting them being equally divided between the community and the state."

180. ——— Report . . . Cincinnati convention, 1909. [n. p. 1909] 12 p. 8°.

P. Kreuspointner, chairman.

Sums up opinions of other organizations. Discusses industrial education as a social force, etc.

181. ——— Report . . . 1911. [n. p. 1911] 11 p. 8°.

P. Kreuspointner, chairman.

Discusses the value of continuation schools upon the Cincinnati and Boston plan. Declares that for the present at least such schools are preferable to the more expensive trade schools.

182. ——— Report . . . 1912. [n. p. 1912] 13 p. 8°.

P. Kreuspointner, chairman.

Reports a growing demand "for shop apprenticeship schools, continuation schools, and for a system of state or nationally subsidized industrial schools, leaving to local effort the adjustment of these schools to local conditions." Discusses the Cincinnati continuation schools, etc.

183. **Brooklyn teachers' association.** Report of sub-committee on school incentives. In its Report of the President, 1908-9. Brooklyn, N. Y., 1909. p. 25-37.

"The utmost development of the capabilities of every individual child means more in the aggregate to the national wealth than does the proper development of our material resources."

184. **Council of supervisors of manual arts.** Year-book, 1907. Seventh annual meeting, New York, 7-8, February 1908. 168 p. 8°.

Contains: 1. Mabel B. Soper—Constructive work in town schools without special equipment, p. 12-19. 2. C. L. Boone—Centers of interest in handwork, p. 20-26. 3. C. A. Bennett—The relationship between drawing and the other manual arts, p. 27-31. 4. W. B. Anthony—The development of school handicraft, p. 32-42. 5. Walter Sargent—The relation of public schools to

museums of fine arts, p. 43-50. 6. M. W. Murray—Woodworking for country schools, p. 51-56. 7. J. P. Haney—The adaptation of pattern to material, p. 57-76. 8. F. E. Mathewson—A shop problem in design, p. 77-80. 9. T. M. Dillaway—Creating ideals in furniture design, p. 81-87. 10. A. W. Garritt—Toy-making as a form of constructive work, p. 88-96. 11. Julia C. Cremins—Some phases of bookbinding in the elementary schools, p. 97-132. 12. Amy R. Whittier—The intermediate grades, p. 133-38.

185. **Eastern art and manual training teachers' association.** Proceedings. First annual convention, Boston, May 4-7, 1910. Second annual convention, Philadelphia, May 11-13, 1911. [Newark, N. J., Press of Baker printing co., 1912] 213 p. 8°.

186. **Eastern manual training association.** Proceedings, fifteenth annual convention, Washington, D. C., April 13-15, 1908. [Springfield, Mass., The F. A. Bassette company] 1908. 122 p. 8°.

Contains: 1. J. C. Park: Fundamental principles of manual training, p. 15-18. Discussion, p. 19-21. 2. W. J. De Catur: The content of the course of study for the grades and high school, p. 22-26. 3. G. E. Myers: Correlation based on social and individual needs, p. 26-31. Discussion, p. 32-34. 4. A. E. Dodd: Hand work training for the normal student, p. 42-48. 5. T. D. Sensor: The needs of rural schools, p. 55-61. 6. Mrs. Ada Williams: The social value of domestic science training, p. 77-80. 7. Sarah E. Bowers: Aims of domestic science in the elementary schools, p. 81-86.

187. **Indiana town and city superintendents' association.** Committee on manual, domestic and vocational training. Report. November meeting, 1908. [n. p., 1908.] 18 p. table. 12°.

Chairman, W. A. Jessup.

Bibliographies: p. 12, 17.

188. **National association of manufacturers of the United States of America.** Committee on industrial education. Report . . . Twelfth annual convention, New York City, May 20-22, 1907. Proceedings. p. 110-38.

Discusses the necessity for trade schools and the attitude of labor unions toward them. Describes some of the newer American technical schools.

189. ——— Report . . . Fourteenth annual meeting, New York, May 17-19, 1909. [n. p., 1909] 19 p. 8°. Caption title

Anthony Ittner, chairman.

States the attitude of the manufacturers toward the trade-unions. Quotes largely from other reports.

"Your committee has had correspondence with all the officers and managers of the principal industrial and trade schools throughout the country and they all agree with us that a much higher grade mechanic can be graduated from a trade school than can be produced through the apprenticeship system in the old way."

190. ——— Report . . . Sixteenth annual meeting, New York City, May 15-17, 1911. [n. p., 1911] 11 p. 8°. Caption title.

H. E. Miles, chairman.

The Association at this meeting passed a resolution favoring the establishment in every community of continuation schools for the benefit of children (14 to 18 years of age) engaged in the industries.

Attention was called by the committee to the fact that—"Almost all of the children who enter the industries enter at the age of 14. The working people of the country who wish their children to enter the industries take them out of school, knowing from experience that if they stay in school until 16 they will have passed the psychological time when industry beckons—will have acquired other tastes, and will never enter the industries. The American-born mechanic, then, is the boy who entered the shop at 14, grown up. Therefore, as good citizens and as employers, it is for us to give especial consideration to the educational problem as it concerns children of 14 to 16."

191. ——— Industrial education, continuation and trade schools, apprenticeship, state and local control, pre-vocational courses in elementary schools. Report . . . Seventeenth annual convention, New York City, May 21, 1912. [n. p., 1912] 39 p. 8°. (No. 28) Cover title.

H. E. Miles, chairman.

Reiterates demand for continuation schools. Day classes for those in employment, and no loss of wages, these to be for children between 14 and 16 years of age. For those from 16 up, night work is permissible. "It is advisable that, as in Wisconsin, the development of industrial education be put into the hands of a special state board of industrial education."

192. **National child labor committee.** [Proceedings of the eighth annual conference held at Louisville, Ky., January 25-28, 1912] New York, National child labor committee, 1912. 223 p. 8°. (Child labor bulletin, vol. 1, no. 1)

Contains: 1. E. O. Holland: Child labor and vocational work in the public schools, p. 16-21. 2. Helen T. Woolley: Child labor and vocational guidance, p. 24-37. 3. Alice P. Barrows: The dangers and possibilities of vocational guidance, p. 46-54. 4. W. H. Elson: Relation of industrial training to child labor, p. 55-65. 5. M. Edith Campbell: Economic value of education, p. 66-72. 6. R. K. Conant: The educational test for working children, p. 145-48.

193. **National education association of the United States. Department of manual training. Committee on the place of industries in public education.** Report . . . *In its Journal of proceedings and addresses*, 1910. Published by the Association, 1910. p. 652-59; 680-788.

Jesse D. Burks, chairman.

Contains: 1. Report of subcommittee on the place of industries in the elementary school, p. 680-710. 2. Report of subcommittee on intermediate industrial schools, p. 710-31. 3. Report of subcommittee on industrial and technical education in the secondary school, p. 731-66.

A selected bibliography on industrial education, p. 766-73.

Papers: p. 650-80; 774-83 (with discussion).

Reprinted as separate. The Association, 1910. 123 p. 8°.

Prof. F. T. Carleton, speaking of the industrial factor in social progress, says: "In the process of adjustment involved in passing from small-scale and unsystematic to large-scale and routinized industry, social and political institutions, including the public school system, must undergo fundamental modifications." He declares that a science of education must rest on "the basis of social and economic progress and demands. Until this basic truth is clearly recognised no science of education can be formulated."

194. ——— **Department of manual training and art education.** *Journal of proceedings and addresses*, 1912. p. 897-1000.

Contains: 1. C. B. Connelley: Citizenship in industrial education, p. 899-907. 2. W. T. Bawden: The relation of the elementary school to subsequent industrial education, p. 907-12. 3. C. A. McMurtry: The significance of the industrial arts in the schools, p. 918-21. 4. F. M. Levitt: Some sociological phases of the movement for industrial education, p. 921-26. 5. F. D. Crawshaw: Needed changes in manual arts, p. 932-42. 6. C. R. Dooley: The manufacturers' viewpoint of industrial education, p. 952-54. 7. J. A. Pratt: Modern apprenticeship training, p. 955-58.

195. ——— **National council of education. Committee on industrial education in schools for rural communities.** Report . . . July 1905. Published by the Association, 1905. 97 p. 8°.

L. D. Harvey, chairman.

An argument for the establishment of industrial education as a distinct feature of work in schools adapted to the requirements of rural communities. Discusses two types of elementary schools: the one-teacher district school, and the consolidated district school having no high school work. Four types of secondary schools adapted to rural communities considered: the consolidated school presenting one or more years of high school work; the rural high school of the county, township, etc., character; the village high school with a large percentage of pupils from the country; the agricultural high school, industrial and academic. Courses of study outlined.

Appendices contain studies of particular schools in Wisconsin and Minnesota. W. M. Hays contributes a paper, prepared by request of the committee, on "Industrial course in the consolidated rural school, the agricultural high school, and the agricultural college articulated into a unified scheme."

196. ——— **Supplementary report . . . July 8, 1907.** *In its Journal of proceedings and addresses*, 1907. p. 409-54. illus.

L. D. Harvey, chairman.

A more extended discussion than the first report. Summarizes the purposes and values of industrial education for the children in rural communities, etc. Describes three typical schools in New York State, Illinois, and Missouri; scope and character of preparation of teachers of industrial subjects in the different kinds of schools investigated, and the conditions under which this preparation can be secured in this country.

197. ——— **Preliminary report . . . to be discussed Monday morning, June 29, 1908.** [Chicago, Printed by the University of Chicago press, 1908] 64 p. 8°.

Advance print from volume of Proceedings, Cleveland meeting.

CONTENTS.—Historical statement.—Waterford high school, Waterford, Pennsylvania [by] D. J. Crosby.—Cecil County agricultural school, Calvert, Maryland [by] D. J. Crosby.—The John Swaney consolidated country school in Magnolia township, Putnam County, Illinois [by] O. J. Kern.—The congressional district agricultural schools of Georgia [by] O. J. Kern.

198. **National metal trades association.** Synopsis of proceedings of the twelfth annual convention, April 13-14, 1910, New York City. [n.p. 1910] 168 p. 8°. Contains: 1. W. B. Hunter: The Fitchburg plan of industrial education, p. 25-31. 2. Herman Schneider: Growth of co-operative system, p. 32-35. 3. F. B. Dyer: A plea for continuation schools, p. 36-41. 4. Report of Committee on industrial education, p. 42-45. 5. C. A. Bookwalter: Winona technical institute, p. 58-61. 6. J. H. Renshaw: Cincinnati's continuation school, p. 91-93. 7. D. S. Kimball: Industrial education, p. 161-64.
199. **National society for the promotion of industrial education.** Proceedings of first annual meeting, Chicago, January 23-25, 1908. Part 1. New York City, National society for the promotion of industrial education, 1908. 68 p. 8°. (Bulletin no. 5)
Contains: 1. C. W. Elliot—Industrial education as an essential factor in our national prosperity, p. 9-14. 2. J. W. Van Cleave—Industrial education from the standpoint of the manufacturer, p. 15-21. 3. H. S. Pritchett—The aims of the national society for the promotion of industrial education, p. 22-29. 4. C. D. Wright—The apprenticeship system as a means of promoting industrial efficiency, p. 30-33. 5. W. R. Warner—The apprenticeship system of to-day, p. 34-39. 6. W. B. Prescott—The value of a thorough apprenticeship to the wage earner, p. 40-50. 7. J. F. Deems—Trade instruction in large establishments, p. 51-55. 8. L. W. Miller—The necessity for apprenticeship, p. 56-60.
200. ——— Part 2. New York City, National society for the promotion of industrial education, 1908. 104 p. 8°. (Bulletin no. 6)
Contains: 1. C. F. Perry—The trade school as a part of the public-school system, p. 6-19. 2. M. P. Higgins—The type of the trade school to meet American needs, p. 20-25. 3. Graham Taylor—The effect of trade schools on the social interests of the people, p. 26-30. 4. Anna G. Spencer—The social value of industrial education for girls, p. 30-45. 5. C. W. Ames—Necessity for many kinds of trade schools, p. 46-48. 6. Luke Grant—The wage earner's attitude toward industrial education, p. 49-55. 7. E. G. Hirsch—The moral aspect of industrial education, p. 56-60. 8. L. D. Harvey and others—The true ideal of a public-school system that aims to benefit all, p. 61-75.
201. ——— Proceedings of second annual meeting, Atlanta, Ga., Nov. 19-21, 1908. New York, National society for the promotion of industrial education, 1909. 151 p. 8°. (Bulletin no. 9)
Contains: 1. T. C. Search—The founding of the school of industrial art in Philadelphia, p. 18-36. 2. E. E. Brown—Unifying influence of industrial art, p. 36-41. 3. C. D. Wright—Industrial education as an essential factor in our national prosperity, p. 42-49. 4. E. P. Bullard, Jr.—Industrial training through the apprenticeship system, p. 51-63. 5. M. W. Alexander—An effective apprenticeship program, p. 63-70. 6. J. M. Shrigley—Organization and management of trade schools, p. 78-90. 7. Florence M. Marshall—How to conduct a trade school for girls, p. 90-100. 8. C. R. Davis—The Federal government and industrial education, p. 101-12. 9. Press Huddleston—The wage earner's benefit from an effective system of industrial education, p. 112-15. 10. Anna C. Hedges—Woman's work in industrial education, p. 116-22. 11. T. M. Ballet—The importance of industrial education in the public schools, p. 126-42.
202. ——— Proceedings of the third annual meeting, Milwaukee, Wis., December, 1909. New York, National society for the promotion of industrial education, 1910. 204 p. 8°. (*Its* Bulletin no. 10)
203. ——— Proceedings of the fourth annual convention, Boston, Massachusetts. Part I. Trade education for girls. Part II. Apprenticeship and corporation schools. Part III. Part time and evening schools. Part IV. The social significance of industrial education. New York, National society for the promotion of industrial education, 1911. 91 p. 8°. (*Its* Bulletin no. 13, pt. 1-4)
Contains: (Part 1) 1. Susan M. Kingsbury: The needle trades, p. 1-4. 2. D. F. Edwards: The department stores, p. 6-12. 3. L. W. Prince: What the schools can do to train girls for work in department stores, p. 12-16. 4. E. M. Howes: What schools can do to train for needle work, p. 17-20. 5. H. R. Hildreth: How the Manhattan trade school for girls meets trade demands, p. 20-26. 6. W. A. Hawkins: What more should the schools do to meet the demands p. 26-28. 7. F. M. Marshall and C. A. Prosser: What more can schools do to meet the new requirements. p. 40-45, 47-51.
(Part 2) 1. M. W. Alexander: Apprenticeship and corporation schools, p. 53-56. 2. Tracy Lyon: How the Westinghouse company trains its apprentices, p. 57-61. 3. F. W. Thomas: Educating apprentices on the Santa Fe, p. 61-69. 4. S. F. Hubbard: A co-operative apprenticeship school, p. 70-76. 5. G. C. Cotton: A half-time system of apprentice instruction, p. 76-81.
(Part 3) 1. W. B. Hunter: The Fitchburg plan, p. 93-108. 2. A. L. Safford: The Beverly industrial school, p. 108-22. 3. F. B. Dyer: Industrial education in Cincinnati, p. 123-28. 4. C. A. Prosser: Massachusetts independent evening industrial schools, p. 129-42.

(Part 4) 1. J. P. Munroe: The social meaning of industrial education, p. 181-83. 2. T. W. Carver: The economic significance of industrial education, p. 183-87. 3. E. B. Butler: Industrial education and the community, p. 188-96. 4. Howell Cheney: The school and the shop from an employer's point of view, p. 196-208. 5. C. H. Winslow: Labor's demands on industrial education, p. 208-13.

A notable address of this session was that of Howell Cheney, who discussed the cause of the lack of progress in children when first entering industrial life, which he attributed to the unrelated nature of the school work which has gone before. He desired to know whether low-grade industrial work might not be made educational. He called attention to the fact that every machine process is the development of a hand process. He remarked that if children possessed some knowledge of these processes and some appreciation of the possibilities of high-grade machine work, even toil in the factory might be made relatively desirable.

204. — Proceedings of the fifth annual meeting, Cincinnati, Ohio, November 2-4, 1911. New York, National society for the promotion of industrial education, 1912. 239 p. 8°. (*Its Bulletin* no. 15)

Contains: 1. How shall the obligation to provide industrial education be met. The obligation of the employer [by] H. E. Miles, p. 29-37; The obligation of the employee [by] Frank Duffy, p. 38-48. 2. J. P. Munroe: President's address, p. 49-56. 3. Herman Schneider: Co-operative plan of the University of Cincinnati, p. 59-67. 4. P. A. Johnston: Vocational plans in the high school, p. 68-79. 5. J. H. Renshaw: The Cincinnati continuation school for apprentices, p. 80-96. 6. J. L. Shearer: The Ohio mechanics' institute, p. 96-108. 7. A. L. Williston: Evening trade and industrial schools, p. 108-8. 8. C. P. Cary: Part-time schools, p. 119-22. Discussion, p. 122-25. 9. David Smeddin: Report of Committee on national legislation, p. 126-34. 10. C. A. Prosser: The training of the factory worker through industrial education, p. 137-55. 11. E. G. Cooley: The argument for industrial education from the success of Germany, p. 178-92. 12. J. P. Frey: A trade union view of industrial education, p. 193-97. Discussion, p. 197-200. 13. Should trade schools for youth above 16 years of age be provided at public expense [by] J. P. Munroe; [by] C. G. Pearse, p. 204-18; [by] G. M. Forbes, 219-26.

The article on The Cincinnati continuation school for apprentices, by J. H. Renshaw, is illustrated with half-tone cuts, showing pupils at work. He says: "The continuation school is distinctively a creation of Cincinnati and is a copy of no other school in the world. . . . It differs from the German plan in that it uses no machine equipment. The school is based upon the principle that the productive power of a youth in a shop does not depend solely upon the hours he works, but that his *attitude toward his work* and his *intelligence in his work* are the determining features. To this end the manufacturers' organizations, the labor organizations, and the school authorities decided two and a half years ago to shorten the hours of labor without decreasing the pay. The working week of the boys was shortened one-half day and their weekly pay was maintained. The half day of rest from work was to be spent in a schoolroom under educational and cultural influences."

205. — [Report of the meeting held at Philadelphia, Pa., December 5, 6, and 7, 1912] *Journal of education*, 76: 683-87, December 26, 1912.

See also Vocational education, 2: 318-33, March 1912. Ably reviewed by William T. Bawden under the title of "Recent progress in the movement for vocational education."

"The most important piece of work," says Mr. Bawden, "accomplished at this convention and perhaps the most important that has yet been accomplished in the movement as a whole, is the formulation of a 'statement of principles and policies that should underlie legislation for vocational education.'"

206. — A symposium on industrial education. Prepared by James P. Haney. New York City, National society for the promotion of industrial education, 1907. 8°. (*Its Bulletin* no. 3)

Opinions of employers and employees regarding industrial education. A questionnaire was sent to 300 manufacturers and representatives of organized labor. The replies received are highly interesting.

207. — Industrial training for women. Prepared by Florence M. Marshall. New York City, National society for the promotion of industrial education, 1907. 8°. (*Its Bulletin* no. 4)

CONTENTS.—A study of the changed position of women in industry; Opportunities of women in industry; What trade training is accomplishing; Suggested schemes for industrial training.

208. — Education of workers in the shoe industry. Prepared by Arthur D. Dean. New York City, National society for the promotion of industrial education, 1908. (*Its Bulletin* no. 8)

209. ——— Industrial education . . . Communication from C. R. Richards, president of the National society for the promotion of industrial education, transmitting reports by a committee of the society on the subject, together with resolutions urging upon Congress an appropriation to enable the Department of education to develop schools for industrial training . . . [Washington, Government printing office, 1910] 8 p. 8°. ([United States] 61st Cong., 2d sess. Senate. Doc. 516)
210. ——— Legislation upon industrial education in the United States, prepared by Edward C. Elliott and C. A. Prosser. New York, National society for the promotion of industrial education, 1910. 76 p. 8°. (*Its Bulletin*, no. 12)
Out of print.
Part 1 gives the general legislation regarding industrial education in public elementary and secondary schools. Part 2 the terminology in legislation, trend of legislation, state commissions, etc. Part 3 is an analysis of the legislation for state industrial and trade educational systems. Part 4 an analysis of the legislation providing for manual training.
211. ——— Report of the Committee of ten on the relation of industrial training to the general system of education in the United States. New York City, National society for the promotion of industrial education [1910] 16 p. 8°. Includes Preliminary report of the Committee of ten, H. S. Pritchett, chairman, submitted at the second annual meeting of the Society, Nov. 19-21, 1908, and Final report, submitted at the third annual meeting, Dec. 2-4, 1909.
212. ——— A descriptive list of trade and industrial schools in the United States. Prepared by Edward H. Reisner. New York City, National society for the promotion of industrial education, August 1910. 128 p. 8°. (*Its Bulletin*, no. 11)
An effort "to bring together in brief form the main facts relating to the organization, administration, methods of instruction and courses of study of trade and industrial schools in the United States."
213. ——— Circular of information; constitution, state branches, officers and members. New York City, National society for the promotion of industrial education, 1908. 44 p. 8°. (*Its Bulletin*, no. 7)
214. ——— Proceedings of the organization meetings. [New York, C. S. Nathan, 1907] 44 p. 8°. (*Its Bulletin*, no. 1)
Out of print.
Contains addresses by N. M. Butler, A. Mosely, Jane Addams, F. A. Vanderlip, etc.
215. ——— New York State Branch. Proceedings of the second annual convention, held at Rochester, N. Y., November 19, 1909. Brooklyn, N. Y., Guide printing and publishing company, 1910. 98 p. 8°. Contains: 1. J. F. McElroy: President's address, p. 7-8. 2. B. R. Rhees: The national importance of industrial education, p. 9-17. 3. Mary S. Woolman: Industrial education for girls, p. 18-23. 4. E. G. Miner: Industrial education from the point of view of the manufacturer, p. 24-33. 5. P. M. Strayer: Industrial education from the point of view of the workman, p. 34-47. 6. Charles De Garmo: Industrial education in relation to race development, p. 48-57. 7. G. M. Forbes: The factory school of Rochester, p. 58-67. 8. A. D. Dean: Preparatory trade schools in other parts of New York State, p. 68-71. 9. C. W. Cross: The apprenticeship system of the New York Central lines, p. 72-86. 10. G. H. Vose: Industrial schools in Beverly, Mass., p. 91-98.
216. ——— The trade continuation schools of Munich. A lecture by Dr. Georg Kerschensteiner, Director of education, Munich, Bavaria, and the Translation of the curricula of selected schools as given in the official report for 1910. New York City, National society for the promotion of industrial education, 1911. 8°. (*Its Bulletin*, no. 14)

The author says: "The essential features of the compulsory trade continuation schools of Munich are thus summed up in these four points: (a) practical work is made the center of interest; (b) the active sympathy and co-operation of employers on the one hand, and of trade societies and guilds on the other, is enlisted on behalf of the schools; (c) the time of instruction is sufficient in amount and excellent in quality; (d) every opportunity that presents itself for training the citizen is utilized."

In addition to the above class of schools, there are in Munich 12 local continuation schools in which boys are enrolled "who are not yet apprentices, but who are engaged in casual and unskilled labor, or who can not be provided with a special continuation school because these numbers are too few."

217. **National society for the study of education.**¹ Sixth year-book. Part I. Vocational studies for college entrance. Chicago, University of Chicago press, 1907. 79 p. 8°.
- Discusses the purport of vocational studies; the educational values and relationship of the value developed in vocational studies to the standards appropriate for college admission.
218. ——— Eleventh year-book. Part I. Industrial education: Typical experiments described and interpreted. Part II. Agricultural education in secondary schools. Chicago, University of Chicago press [1912] 2 v. 124, 113 p. 8°.
- Contains interesting papers on the vocational high school; the part-time co-operative plan of industrial education; vocational guidance; classification of plans for industrial training, etc.
- Part I gives various types of vocational schools. Chapter 1 presents a classification of plans for industrial training, by Frank M. Leavitt. Each chapter of the year-book is by a different author and describes for the most part the given type of school with which the author is connected. Comparison is made with other institutions of similar character, and conclusions drawn "as to the relation of the particular type of school to the solution of the industrial education problem."
219. **New York City. Committee on vocational schools and industrial training.** Report.
Chairman, Frederick R. Coudert.
220. **North Dakota educational association. Committee of seven.** On adjustment of educational work in North Dakota with reference to the needs of the times. Preliminary report. *In its Proceedings, 1906-1909.* p. 35-51.
Chairman, C. C. Schmidt.
Reprinted. The association [1908] 21 p.
Report. *In its Proceedings, 1909.* p. 48-105.
Discussion: p. 106-11.
221. **Society for the promotion of engineering education. Committee on industrial education.** Report . . . [n. p., 1908] p. 363-405. 8°
Reprinted from its Proceedings, 16.
Prepared by Arthur L. Williston, chairman.
222. ——— American industrial education; what shall it be? Preliminary report of a committee of the society. *In Proceedings of the New York meeting, July 2-3, 1900.* p. 1-71.
223. **Utah educational association. Committee on industrial education in public schools.** Report. *Utah educational review, 4:* 34-36, February 1911.
Chairman, John A. Wikstoe.
224. **Western drawing and manual training association. Proceedings . . .** Chicago. Twelfth annual report, 1905. [Chicago, 1905] 206 p. 8°.
- Contains constitution of the association. Name was originally Western drawing teachers' association, but changed at the above meeting. Papers by F. D. Cranshaw, C. S. Hammock, and others.
225. ——— Proceedings . . . Chicago. Thirteenth annual report, 1906. [Peoria, Ill., Press of J. W. Franks & sons, 1906] 117 p. 8°.
- Contains report of Committee on handicrafts in the public schools, p. 60-87. Elizabeth E. Langley, chairman. Data based upon replies received from a questionnaire sent to public schools in various parts of the country. Report represent all the states except North Dakota, Arizona, Oklahoma, South Carolina, Mississippi, and Louisiana.
226. ——— Proceedings . . . Indianapolis [Ind.] Fifteenth annual report, 1908. 104 p. 8°.
- Contains: 1. C. A. Bennett—A cycle of development, p. 22-27. 2. W. O. Thompson—The place of manual arts in the school, p. 28-33. 3. W. L. Bryan—Moral education through art and manual training, p. 34. 4. Mary S. Snow—The place of domestic economy in the curriculum, p. 40-44. 5. Elizabeth Rinehart—The relation of domestic science to the future welfare of society, p. 45-49. 6. J. F. Barker—Manual training in high schools, p. 58-61. 7. E. G. Allen—The place of woodworking in the high school, p. 62-65. 8. F. L. Burnham—The need of the power to visualise in the manual arts, p. 66-72. 9. Report of committee on college entrance credits, p. 73-79.

¹ Originally the Herbart society; name changed to the National society for the scientific study of education, and finally to the present title.

227. ——— Proceedings . . . Saint Louis. Sixteenth annual report, 1909. [Bloomington, Ill., Pantagraph ptg. and sta. co., 1910] 208 p. 8°.
Contains: 1. E. D. Day—The socio-economic value of domestic art in the education of future home makers, p. 87-92. 2. C. M. Gibbs—Preparation necessary for a teacher of domestic arts, p. 93-100. 3. K. F. Steiger—The place of the study of clothing in the life of a girl, p. 101-3. 4. C. M. Gibbs—Household arts in the grades, p. 106-8. 5. C. M. Woodward—History and influence of the manual training movement, p. 122-30. 6. C. F. Perry—Trade teaching in the public schools p. 131-42. 7. Florence Ellis—The manual arts in the primary grades, p. 153-59.
228. ——— Proceedings . . . Minneapolis. Seventeenth annual report, 1910. [Oak Park, Ill., Oak leaves company, 1910] 239 p. 8°.
Contains: 1. H. N. Winchell—Problems involved in the introduction of the industrial arts in the elementary schools, p. 36-42. 2. L. A. Bacon—Correlation of art and manual training in grade schools, p. 43-44. 3. H. Wood—The correlation of art and manual training in high schools p. 45-51. 4. O. L. McMurtry—Bookbinding in grade schools, p. 52-55. 5. W. Sargent—Fine and industrial art in public education, p. 56-62. 6. R. W. Selvidge—Industrial education from the viewpoint of organized labor, p. 63-74. 7. E. M. Church—Relative values of subjects in school courses of study, p. 76-80. 8. A. F. Payne—The correlation of metal work and design in the grammar and high school, p. 90-94. 9. D. Upton—Is manual training worth while?, p. 95-100. 10. Mary S. Snow—Correlation of household arts with other subjects of the curriculum, p. 107-10. 11. A. P. Norton—Domestic science in public schools in relation to the pure food law, p. 111-15. 12. C. A. Bennett—Some suggestive features of industrial education in Germany, p. 147-56.
229. Women's educational and industrial union, Boston, Mass. Thirty-third annual report . . . for the year 1910-1911. Boston, Mass., 1912. 76 p. 8°.

COMMISSIONS.

230. California. Commission on industrial education. A tentative industrial education bill. In *Sierra educational news*, 6: 28-30, October 1910.
231. Connecticut. Commission on trade schools. Appointed, 1903. Report . . . concerning trade schools. Hartford, Hartford press, 1907. 10 p. 8°.
232. Indiana. Commission on industrial and agricultural education. Report . . . December, 1912. Indianapolis, Wm. B. Burford, contractor for state printing and binding, 1912. 133 p. 8°.
Will A. Yarling, chairman.
Recommendations include 17 items concerning "the establishment of vocational schools, the machinery of administration, compulsory attendance, teacher training, and related points." Reviewed in *Vocational education*, 2: 251-55, January 1913.
Appendices contain a digest of laws relating to industrial education, also drafts of bills proposed—vocational education in industries, agriculture and domestic science; apprenticeship; and certification of the compulsory attendance laws. Views of organized labor and manufactures given.
233. Maine. Committee on industrial education. Report of the Committee on industrial education, 1910. Augusta, Kennebec journal print, 1910. 72 p. fold. diagr. 8°.
Contains report and recommendations of special committee created by the legislature of 1909. To be found also as chapter I in annual report of the state superintendent for 1910.
234. Maryland. Commission on industrial education. Report of the Commission to make inquiry and report to the legislature of Maryland respecting the subject of industrial education, 1908-1910. Baltimore, G. W. King printing co., state printers [1910] 121 p. illus. 8°.
Discusses among other things the practicability of introducing industrial instruction, or extending it, in the schools of Maryland, city and rural, with forms of industrial education for colored children. Gives replies to circular letter addressed to citizens of Maryland and others.
235. Massachusetts. Commission on industrial and technical education. Report . . . 1906. Boston, Wright & Potter printing co., state printers, 1906. 196 p. 8°. ([General court] Senate no. 349)
Carroll D. Wright, chairman.
Reprinted by Columbia university, Teachers college. Educational reprints, no. 1.
Outlines system of education. Gives the status of vocational education in Massachusetts. Presents report of the sub-committee on the Relation of children to the industries. Statistics gathered

during the investigation. Industrial education in Europe. Submits for consideration of the legislature the draft of a bill providing for industrial and technical schools, with the recommendation that a second commission be appointed to extend the investigation of methods of industrial training and of local requirements, and advising and assisting in the introduction of industrial instruction by means of a system of independent schools. With some modifications the recommended legislation was adopted by the State. The new commission was appointed August 31, 1904.

236. ——— [First annual] report . . . March 1907. Boston, Wright & Potter printing co., state printers, 1907. 71 p. 8°. (Public document no. 76)
Paul H. Hanus, chairman.
Advocates co-operation with local authorities in the founding of schools for technical and industrial education. Shows that considerable progress had been accomplished in the matter of establishing in several cities of the state of the industrial schools contemplated by the law.
237. ——— Second annual report . . . January 1908. Boston, Wright & Potter printing co., state printers, 1908. 682 p. 8°. (Public document no. 76)
Paul H. Hanus, chairman.
A notable report. Evening industrial schools established by the commission in five cities. Requests for others under advisement. Nearly 1,000 pupils in attendance upon these schools. In reviewing the work accomplished during the year, the Commission says that "during the past year the interest in industrial education steadily increased among all classes and in all directions. Both employers and employed are meeting on the common ground of mutual interests." The report gives voluminous data on industrial education in foreign countries; the relations of European industrial schools to labor, etc. Describes special schools in the United States; and the attitude of the manufacturing interests in 20 Massachusetts cities towards industrial education. Fully illustrated.
238. ——— Third annual report . . . January 1909. Boston, Wright & Potter printing co., state printers, 1909. 186 p. 8°.
Day industrial schools established in 2 cities and evening industrial in 11 cities of the state. By an act of the legislature, approved May 28, 1909, the commission on industrial education was abolished, likewise the existing state board of education. The powers and duties of each body were given to a new board of education, created in conformity with the provisions of the act.
239. ——— Industrial continuation schools for jewelers' and gold and silver workers' apprentices, Munich. Boston, Wright & Potter, 1907. 12 p. 8°. (Bulletin no. 1)
240. ——— Industrial continuation schools for male commercial employees, Munich. Boston, Wright & Potter, 1907. 12 p. 8°. (Bulletin no. 2)
241. ——— Industrial continuation schools for machinists' apprentices, Munich. Boston, Wright & Potter, 1907. 12 p. 8°. (Bulletin no. 3)
242. ——— Industrial continuation schools for mechanics' apprentices, Munich. Boston, Wright & Potter, 1907. 15 p. 8°. (Bulletin no. 4)
243. ——— Industrial continuation schools for machinists' apprentices, Munich. Boston, Wright & Potter, 1907. 11 p. 8°. (Bulletin no. 5)
244. ——— Industrial continuation schools for gardeners' apprentices, Munich. Boston, Wright & Potter, 1907. 6 p. 8°. (Bulletin no. 6)
245. ——— The agricultural school. Boston, Wright & Potter, 1907. 11 p. 8°. (Bulletin no. 7)
246. ——— Industrial education, under state auspices, in Massachusetts. Boston, Wright & Potter, 1908. 13 p. 8°. (Bulletin no. 8)
247. ——— Some representative American industrial and manual training schools. Boston, Wright & Potter, 1908. 87 p. illus. 8°. (Bulletin no. 9)
248. ——— Report on the relations of European industrial schools to labor. By Charles H. Winslow. Boston, Wright & Potter, 1908. 22 p. 8°. (Bulletin no. 10)
249. ——— Report on the advisability of establishing one or more technical schools or industrial colleges . . . Boston, Wright & Potter, 1908. 38 p. 8°. (Bulletin no. 11)

250. **Michigan. State commission on industrial and agricultural education.** Report. Lansing, Published by the Commission, 1910. 95 p. tables. 8°. Chairman, Walter H. French.
Appendix C—Authorities: p. 92-95.
251. **Mosely educational commission. Report.** London, Co-operative printing society, 1904. 400 p. 8°. Contains reports of 26 English educators who were brought to the United States in 1903 by Sir Alfred Mosely to investigate American methods of education. A number of papers treat directly of technical and industrial education; the attitude of the employer of labor and trade-unions. Comparisons drawn between conditions in England and this country.
252. **New Jersey. Commission on industrial education. Report . . . 1908.** Trenton, N. J., MacCrellish & Quigley, state printers, 1909. 177 p. 8°. Data obtained through correspondence and personal interviews with employers and workers everywhere in the state. Results of investigations show that the apprenticeship system has been virtually abandoned as a means of instructing the young in the various trades. There is: "a lack of skilled and efficient workmen, and this will be largely increased unless a better means of vocational training is found." Schools have not been able to offer vocational instruction. Fully 95 per cent of the pupils leave school between the ages of 14 and 17, and without any idea as to what trade or vocation they should pursue. They drift into occupations, rather than choose those most suited to their abilities, the result being an arrested progress. The trades have become so specialized that there is but little opportunity for a novice to go beyond the narrow limits of the work to which he is assigned, unless he has supplementary training. Commission reported that trade schools are undesirable at present, being too expensive a form of education. "The average person leaves school early in life to go to work, and the necessity of earning his daily bread prevents him from attending a day trade school." Only a small percentage of the manufacturers of New Jersey favor partial-time day industrial schools. Recommends the passage of an act creating a commission on industrial education, to consist of five citizens, at least three of whom shall be engaged in industrial occupations. Commission to make and enforce rules and regulations for the employment of teachers in the industrial schools which may be established. Recommends establishing industrial schools in communities by boards of education, school committees, or like bodies. Appendix contains an excellent résumé of industrial education and manual training in America; and a paper on the money value of industrial education, giving among other data graphic statistics showing the average weekly earnings of graduates of the Newark technical school, a state institution of secondary grade.
253. ——— Report . . . 1910. Trenton, N. J., MacCrellish & Quigley, state printers, 1910. 7 p. 8°.
254. **Ohio. State commissioner of common schools. Industrial education.** In his Annual report, 1909. Springfield, Ohio, Springfield publishing company, state printers, 1910. p. 11-21.
255. **Rhode Island. Commissioner of public schools. Special report, relating to industrial education . . . March 28, 1911.** Providence, E. L. Freeman co., 1911. 102 p. 8°. Commissioner, Walter E. Ranger.
Bibliography: p. 97-102 (Supplement II)
256. **United States industrial commission. Relations and conditions of capital and labor employed in the manufactories and general business. Report. v. 7.** Washington, Government printing office, 1901. 8°. Contains considerable data regarding apprenticeship.
257. **Wisconsin. Commission upon the plans for the extension of industrial and agricultural training. Advance sheets . . . Madison, Wis., Democrat printing company, state printer, 1911. vii, 135 p. 8°.** C. P. Cary, chairman. This Commission, appointed by the Governor of Wisconsin in 1909, to investigate industrial and agricultural education and formulate plans upon which to base legislative action, submitted its report on January 10, 1911. Among other measures it recommended continuation schools, with compulsory attendance of children from 14 to 16 years of age already engaged in industry, supplemented by trade and evening schools. It advised the modernization and extension of outgrown apprentice laws and their adaptation to the requirements of proposed industrial schools.

VI. INDUSTRIAL EDUCATION AND TRADE-UNIONS.

258. **American federation of labor.** Industrial education. Consisting of an investigation and report by a competent special committee; reports of officers and committees; action of A. F. of L. convention; the attitude of organized labor and others toward the problem; a glossary of definitions, etc.; labor's bill for congressional enactment. 1st ed. Washington, American federation of labor, 1910. 69 p. 8°.

A brief summary of the entire field of industrial education, with particular emphasis on the attitude of organized labor toward the problem, in foreign countries and in the United States. Describes apprenticeship schools, legislation, etc.

Report warns against the exploitation of boys who desire to become skilled craftsmen.

"A proper apprenticeship system which will guarantee to the youth the opportunity of learning his trade as a whole is very much desired.

"One of the disadvantages of many apprenticeship systems is that establishments have become so large and with so many departments with their divisions and subdivisions and processes that the time of the boy is fully employed in mastering details of one department to the exclusion of all other departments. Public industrial schools or schools for trade training should never become so narrow in their scope as to prevent an all-round shop training."

259. ——— Industrial education. Report of Committee on industrial education; compiled and edited by Charles H. Winalow. Washington [Government printing office] 1912. 114 p. 8°. (62d Congress, 2d sess. Senate. Document no. 936)

Presents the authoritative, official statement of the attitude of the American federation of labor toward vocational education. Gives the conclusions and recommendations of the committee, based on a careful study of the situation. Various schools already established are described.

260. **Duffy, Frank.** Industrial education and the labor unions. New York, Teachers college, Columbia university [1912] 14 p. 8°. (Teachers college. Technical education bulletin no. 15. 3d series, no. 18)

Address given at Teachers college, February 15, 1912. Voices the opposition of labor unions to the private trade schools. Tells about the unions giving industrial education to their members. Thinks industrial education should be a part of the public school system.

261. ——— Industrial education and what labor unions are doing to promote it. Vocational education, 2: 28-35, September 1912.

This article is by the General secretary of the United brotherhood of carpenters and joiners. "His extended knowledge and experience, as well as official position, enable Mr. Duffy to speak with authority on this question."

262. **Golden, John.** The educational need from the viewpoint of organized labor. Journal of education, 70: 91-92, July 22, 1909.

263. ——— Position of labor unions regarding industrial education. In American academy of political and social science. Annals, 33: 185-87, January 1909.

264. **Haney, James P.** A symposium on industrial education. [Asbury Park, N. J., Kinmonth press] 1907. 58 p. 8°. (National society for the promotion of industrial education. Bulletin no. 3)

Presents in concise and personal form the opinions of employers and employees in regard to industrial education.

265. **Merrill, George Arthur.** Trade schools and trade unions. In National education association of the United States. Journal of proceedings and addresses, 1907. p. 1048-55.

Reprinted in Western journal of education, 12: 501-509, October 1907.

266. **Prescott, William B.** Trade unions and industrial education. In National education association of the United States. Department of superintendence. Proceedings, 1910. p. 127-35.

Also in School exchange, 1: 246-54, March 1910.

Largely the work of the International typographical union; the correspondence course in printing.

267. **Ronciovieri, Alfred.** The relations of organized labor and technical education. University of California chronicle, 12: 368-80, October 1910.

268. **Selvidge, Robert W.** Industrial education from the viewpoint of organized labor. *American school board journal*, 40: 6-7, 27, June 1910.
269. **United States. Bureau of labor.** Attitude of employers, graduates of trade and technical schools, and labor unions . . . toward trade and technical education. *In* Report of the Commissioner of labor, 1902. Washington, Government printing office, 1902.
Includes: United States, p. 367-424; Austria, p. 560-63; Belgium, p. 672-84; France, p. 853-68; Great Britain, p. 1129-52; Switzerland, p. 1303-05.
270. **Vanderlip, F. A.** Trade schools and labor unions. *In* his *Business and education*. p. 56-81.
Great emphasis is laid upon the need for continuation trade schools to train, not the captains of industry, but the rank and file of the American industrial army. The German schools of this sort are cited as good examples.

VII. ECONOMIC AND SOCIAL VALUES.

271. **Campbell, W. H.** The value of industrial training in the elementary schools. *Educational bi-monthly*, 3: 285-98, April 1909.
272. **Dillon, Charles.** The money value of training for the trades. *World's work*, 22: 14756-58, August 1911.
Writer calculates that "a boy taught under the apprenticeship system earns \$29,000 in a lifetime; a trade school boy earns \$40,000; a technical graduate earns \$65,900."
273. **Dodge, James M.** The money value of technical training. *American society of mechanical engineers*, 25: 40-48.
Comparison made of the earning capacity of men trained in the shop and those trained in school.
274. **Franklin, George A.** Do industrial courses promise substantial returns in efficiency? *In* Minnesota educational association. *Journal of proceedings and addresses*, 1909. [Minneapolis, Minn., Syndicate printing company] p. 63-66.
Discussion: p. 67-68.
Gives statistics of 62 schools.
275. **Golden, John.** Importance of industrial education to the workingman. *Social education quarterly*, 1: 191-95, June 1907.
276. **Hiatt, James S.** The child, the school, and the job. Philadelphia [1912] 12 p. 8°. (Public education association. Study no. 39) Cover title.
Reprinted from the City club bulletin, December 27, 1912.
A study of child wage earners between 14 and 16 years of age, as they apply to the city of Philadelphia. Study based on the school census of June, 1912. Presents a number of interesting statistical charts and tables.
The following conclusions are drawn: "1. That the problem of the working child is not an immigrant problem, since over 50 per cent of those reported as at work are of the second generation of American birth. 2. That this is not the problem of the boy alone, since over 49 per cent of the workers are girls. 3. That the vast majority of children who leave school at fourteen to enter industry go into those kinds of employment which offer a large initial wage for simple mechanical processes, but which hold out little or no opportunity for improvement and no competence at maturity. 4. That wages received are so low as to force a parasitic life. 5. That but slight advancement is offered the fifteen-year-old over the fourteen-year-old child worker."
277. **Hirsch, E. G.** Moral aspects of industrial education. *Educational review*, 35: 448-54, May 1908.
278. **Johnston, Charles Hughes.** Social significance of various movements for industrial education. *Educational review*, 37: 160-80, February 1909.
279. **Jordon, G. Gunby.** Material and moral benefits of industrial education. *In* National society for the promotion of industrial education. *Proceedings, second annual meeting*. New York City, National society for the promotion of industrial education, June 1909. p. 122-33. (*Its Bulletin* no. 9)

280. **Massachusetts. Commission on industrial and technical education.** What the value of the years from fourteen to sixteen might be to boys. *In its Report . . . April 1906.* p. 57-69. chart.
To girls: p. 70-84.
Summary: p. 85-93.
Wages, tables: p. 68-80, for boys; p. 82-84, for girls.
281. **Maxwell, G. E.** The civic value of industrial education for general development. *In Minnesota educational association. Journal of proceedings and addresses, 1908.* [St. Paul, Minn., Press of Syndicate printing company] p. 270-75.
282. **Munroe, James P.** The Educational bearings of manual training. *In Eastern manual training association. Proceedings, 1903.* p. 70-82.
Reprinted.
283. **Noyes, W.** The ethical values of the manual and domestic arts. *In Northern Illinois teachers' association. Proceedings, 1909.* p. 6-17.
Also in *Manual training magazine*, 11: 201-13, February 1910.
284. **Reynolds, J. H.** Higher technical instruction. *In Imperial education conference. Report, 1911.* London, Printed by Eyre and Spottiswood, 1911. p. 133-48.
Deals chiefly with the German technical high schools.
285. **Reynolds, John Hugh.** Relation of education to production. *Arkansas school journal*, 10: 10-14, February 1906.
A strong plea for Arkansas to furnish proper training for the development of her industrial resources by her own trained men.
Presidential address, *Arkansas teachers' association.*
Reprinted.
286. **Rhees, Benjamin Rush.** The national importance of industrial education. [New York ? 1909] 11 p. 8°
Address, second annual convention, New York State branch National society for the promotion of industrial education.
287. **Rogers, Howard J.** Relation of education to commercial and industrial development. *Educational review*, 23: 490-502, May 1902.
The importance of good elementary education before specialization for vocation.
288. **Rollins, Frank.** Industrial education and culture. *Educational review*, 34: 494-503, December 1907.
Address before Schoolmasters' association of New York and vicinity, October 1907.
289. **Sigma.** The bearing of technical education on industrial progress. *Journal of education* (London) n. s. 30: 741-43, 816-19, November, December 1908.
290. **Stephens, George Asbury.** The new apprenticeship. *Journal of political economy*, 19: 17-35, January 1911.
Co-operative system between factories and schools.
Reprinted "Influence of trade education upon wages."
291. **Taylor, Graham Romeyne.** Industrial education and national prosperity. *Charities and The Commons*, 19: 1579-84, February 8, 1908.
Discusses the work of the first annual meeting of the National society for the promotion of industrial education.
292. **Webster, W. F.** Our present needs. *In Minnesota educational association. Journal of proceedings and addresses, 1909.* [Minneapolis, Minn., Press of Syndicate printing company] p. 30-38.
President's address. Reprinted.
293. **Wickliffe, Mary Frances.** Some results from manual and industrial training. *In Southern educational association. Journal of proceedings and addresses, 1906.* p. 188-97.
Students in textile schools, p. 195-98.

VIII. INDUSTRIES AND HEALTH.

294. **Goldmark, Josephine.** Fatigue and efficiency. Introduction by Frederic S. Lee . . . New York, Charities publication committee, 1912. xvii, 591 p. 8°. (Russell Sage foundation)
 An epoch-making book. Analyzes fatigue, its nature and effects. Seeks to explain the phenomena of overwork in working people. Of value to educators, especially those engaged in preparing young people for industrial pursuits.
295. **Noyes, William.** Overwork, idleness or industrial education? In National child labor committee. Proceedings of second annual meeting. New York, 1906. p. 84-95.
 "The alarming increase of neurotic diseases among school children, the crying need of facilities for play, and the social necessity for industrial education—all three facts point in the same direction, namely, that the school must assume the responsibility for a greater share of the child's time."
296. **Terman, Lewis M.** The relation of the manual arts to health. Popular science monthly, 78: 602-9, June 1911.
297. **Winch, W. H.** Some measurements of mental fatigue in adolescent pupils in evening schools. Journal of educational psychology, 1: 13-23, 83-100, January, February 1910. tables. statistics.
 "Evening work is comparatively unprofitable, and a short time in class in the evening is sufficient, plus the labors of the day, to induce a very low condition of mental energy."

IX. LEGISLATION.

298. **American federation of labor.** Present industrial educational enactments. In *its* Industrial education. Washington, D. C., 1910. p. 49-55.
 A review of state laws.
299. [California. Commission on industrial education] A tentative industrial education bill. Sierra educational news, 6: 26-30, October 1910.
 Chairman, Col. Harris Weinstock.
300. **Commercial club of Chicago and others.** Tentative draft of proposed law for establishing a system of vocational schools for Illinois. Chicago, 1912. 10 p. 12°.
301. **Cruikshank, Lewis M.** Needed legislation in Pennsylvania for the promotion of manual industrial education. Pennsylvania school journal, 59: 141-45, September 1910.
302. [The Davis Bill for secondary education in agriculture, mechanic arts, and home economics] Western journal of education, 13: 321-25, June 1908.
 Gives full text of the bill.
 Introduced in House of Representatives early in 1906 by Hon. C. R. Davis, of Minnesota. The object of the bill was the raising of a per capita tax of 10 cents to establish and maintain industrial and agricultural high schools, one-half of the proceeds to be appropriated for industrial high schools in the cities and one-half for agricultural high schools in the rural districts.
303. **Elliott, Edward C.** Industrial education; summary of legislation concerning industrial education in public elementary and secondary schools. [Madison, Wis., American association for labor legislation] 1909. 16 p. 8°.
304. ——— Industrial education. Summary of legislation concerning industrial education in public elementary and secondary schools [in the United States] [New York, 1910] 16 p. tables. 8°. (American association for labor legislation. Legislative review, no. 2)
305. ——— and **Frosser, C. A.** Legislation upon industrial education in the United States; prepared for the American association of labor legislation and the National society for the promotion of industrial education . . . New York City, National society for the promotion of industrial education, 1910. 76 p. table. 8°. (National society for the promotion of industrial education. Bulletin no. 12.)

306. **Golden, John.** State legislation for industrial education, and organized workmen. *In* National society for the promotion of industrial education. Proceedings [1909] p. 133-38.
307. [Halliday, Samuel Dumont] History of the agricultural college land grant, act of July 2, 1862 . . . Ithaca, N. Y., Ithaca democrat press, 1905. 63 p. 8°.
308. **Massachusetts.** Commission on industrial education. Industrial education, under state auspices, in Massachusetts. Boston, Wright & Potter printing co., 1908. 13 p. 8°. (*Its* Bulletin no. 8)
309. **New York (State) Education department.** Division of trades schools. General industrial and trades schools. [Circular, October 1, 1908] 21 p. 8°. Bibliography: p. 10-21.
Text of law providing for the establishment and maintenance of industrial and trade schools, with notes on the law.
310. Recent legislation concerning vocational education. Vocational education (Peoria) 1: 43-50, September 1911.
311. **Simpkins, Rupert B.** Legislation for the last three years on vocational education. School review, 20: 407-16, June 1912.
Cites the valuable work of the six commissions provided for by legislative enactment within the last three years.
312. **United States. Bureau of Labor.** Laws relating to industrial education. *In its* Twenty-fifth annual report of the Commissioner, 1910. p. 501-18.
313. — **Congress. Senate.** A bill to provide for co-operation with the states in promoting instruction in agriculture, the trades and industries, and home economics in secondary schools; in preparing teachers for these vocational subjects in state colleges of agriculture and the mechanic arts, in state normal schools, and in other training schools for teachers supported and controlled by the public; in maintaining extension departments of state colleges of agriculture and the mechanic arts; in maintaining branches of state experiment stations; and to appropriate money and regulate its expenditure. [Washington, Government printing office, 1912] 28 p. 8°. (82d Congress, 2d session. Senate 3. Calendar no. 348. [Report no. 405])
Introduced by Senator Page April 6, 1911; reported with amendments Feb. 26, 1912; text of original bill and reported amendments withdrawn, and substitute reported placed on calendar, June 14, 1912; ordered reprinted July 24, 1912.
A special committee of the National society for the promotion of industrial education, David Snedden, chairman, appointed to consider the above bill, made an interesting report to the executive committee of the society. Discussing the uncertainty which prevails as to what constitutes vocational education, the committee came to the conclusion that the Page bill should contain "a series of definitions indicating the types of education contemplated and the standards applicable to its administration," etc. They accordingly drafted, by way of suggestion, a measure which incorporated the principles suggested by them.
The Page bill would appropriate \$3,000,000 annually to extension work; \$3,000,000 a year to aid district agricultural schools; \$3,000,000 to introduce the teaching of agriculture, trades and domestic science in the rural schools; and 3,000,000 to teaching trades and domestic science in the city schools. The money given from the Federal treasury for these purposes must be supplemented by an equal sum from the state. The state must evince its sincere purpose to co-operate in the work by giving its half.

X. ELEMENTARY SCHOOLS.

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523. **Massachusetts. Bureau of labor statistics.** Industrial education for working girls. Boston, 1905. 38 p. (pt. 1 of Annual report)
524. **Mumm, Elizabeth von.** Die pflichtfortbildungsschule des weiblichen geschlechts in hygienisches beziehung . . . Bonn, M. Hager, 1906. 14 p.
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529. **Williams, A. S.** Technical school in Naples. *School review*, 13: 398-410, May 1905.
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531. ——— The relative value and cost of various trades in a girls' trade school. *American academy of political and social science. Annals*, 33: 127-40, January 1909.
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XIX. BACKWARD AND DEFECTIVE CHILDREN.

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Industrial education of cripples.
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537. **Clark, Ida Hood.** Manual arts in open air schools. *School arts work*, 9: 1045-51, June 1910. illus.
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538. **Craftsmanship for crippled children.** A home school where they are taught to be skilled workers and are made happy and independent. *Craftsman*, 9: 663-74, February 1906.
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550. **Snedden, David S.** Vocations and industrial education . . . In his Administration and educational work of American juvenile reform schools. New York, Columbia university, Teachers college, 1907. p. 69-118.
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552. **Taylor, John Madison.** Difficult boys. Popular science monthly, 69: 338-51, October 1906.
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XXI. NEGRO.

555. **Armstrong association, Philadelphia.** Educational committee. Report. Industrial opportunities for negroes in Philadelphia. Southern workman, 40: 419-42, July 1911. tables.
Opportunities for industrial education, p. 421-28.
556. **Calhoun colored school, Calhoun, Ala.** Nineteenth annual report of the principal . . . 1910-11. Boston, Geo. H. Ellis co., printers [etc.] 1911. 65 p. illus. 16°.
Presentation of industrial training of boys and girls. Boys taught agriculture, blacksmithing, carpentry, cobbling, manual training, and wheelwrighting.
557. **Du Bois, W. E. Burghardt, ed.** The negro artisan. A social study made under the direction of Atlanta university . . . Atlanta, Ga., Atlanta university press, 1902. viii, 192 p. 8°. (Atlanta university publications, no. 7) Cover title.
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559. **Jinks, John H.** Manual training at Hampton institute and its relation to the trades. Manual training magazine, 9: 200-10, February 1908. illus.
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The relation of the industrial training of negroes to southern prosperity. Illustrated with graphic statistics.

561. **The negro problem.** A series of articles by representative American negroes of to-day. New York, James Pott & co., 1903. 234 p. 8°. Contains a valuable paper on industrial education, by Booker T. Washington.
562. **Straton, John Roach.** Will education solve the race problem? North American review, 170: 785-801, June 1900.
563. **Thrasher, Max Bennett.** Tuskegee, its story and its work. With an introduction by Booker T. Washington. Boston, Small, Maynard & co., 1901. xvi, 215 p. illus. 12°.
564. **Washington, Booker T.** Relation of industrial education to national progress. American academy of political and social science. Annals, 33: 1-12, January 1909.
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565. ——— Successful training of the negro. World's work, 6: 3731-51, August 1903. illus.
Tuskegee institute.
566. ——— Working with the hands. New York, Doubleday, Page & co., 1904. xi, 246 p. 8°. Describes methods employed at the Tuskegee institute to train skilled laborers. Emphasizes the value of industrial education for negroes.
567. ——— *ed.* Tuskegee and its people: their ideals and achievements. New York, D. Appleton & co., 1906. xiv, 354 p. 8°. Part I consists of papers by the directors of Tuskegee institute, describing the work, etc. Part II is made up of autobiographies of graduates, who give interesting accounts of results accomplished in later life.

XXII. Y. M. C. A. WORK.

568. **Educational activities for boys . . .** New York, Young men's Christian association press, 1907. 52 p. illus. 12°. Reprinted from Association boys. Contains papers by different writers on vocational training, manual training, etc.
569. **Hodge, George B.** Association educational work for men and boys . . . New York & London, Association press [1912] 256 p. 8°. Describes work of the Y. M. C. A. in the field of vocational education. Illustrated with 50 charts or graphs; also half-tones showing the various kinds of work in operation. Educational statistics compiled from Government and state reports: books and periodicals, etc.
570. **Towson, Charles B.** The industrial outreach of the Y. M. C. A. Survey, 29: 524-27, January 18, 1913. Shows progress made in vocational training. Work among the immigrants, etc. Reports 30,000 industrial workers in night classes. In 1912, 1,500,000 attended shop meetings. Extension work done.
571. **Young men's Christian associations.** Educational department. Apprentice schools . . . [New York, Young men's Christian association press, 1908?] [4] p. 12°. Reprint from Information and suggestions.

XXIII. VOCATIONAL EDUCATION.

572. **Adrian, H. A.** Equal opportunity for all children. Western journal of education, 13: 305-12, June 1908. A plea for each child's education to be fitted to his ability and bent of inclination.
573. **Allinson, Francis G.** The cultural and the vocational in the college curriculum. Education, 32: 284-92, January 1912. Emphasis laid upon the fact that culture does not necessarily exclude vocational training, while the latter may include culture.

574. **Barrows, Alice Prentice.** The dangers and possibilities of vocational guidance. *Child labor bulletin*, 1: 46-54, June 1912.
The writer says: "Is there any reason why we should not profit by the mistakes of England? Can not we prevent the state here from finding itself committed to the questionable duty of finding work for children who are not prepared for it?"
575. ——— Report of the vocational guidance survey. *In* New York City. Department of education. 14th annual report, July 31, 1912. New York [1913] p. 385-97. (Appendix G.)
The Vocational guidance survey was organized under the auspices of a joint committee of the Junior league and the Public education association. The work upon which this report is founded was started on September 18, 1911. The field investigation stopped on June 11, 1912. The final report is in preparation. The Vocational guidance survey has now become the Vocational education survey, a department of the Public education association.
The survey was organized to find answers, if possible, to the following questions: 1. Why do children leave school in large numbers as soon as they are fourteen? 2. What becomes of them? 3. Will vocational guidance aid them?
The investigation was based on an intensive study of a small group, supported by comparison with a larger group. The large group was made up of the 19,672 children who took employment certificates in Manhattan in 1911. The intensive work was done in Public schools 8, 95, 41, and 3 in District 9, and Public schools 76, 74, and 82 in District 13.
Three investigators interviewed children who applied for working papers from September, 1911, to June, 1912. The children were first interviewed in school; then the investigator visited their homes before they left school, and again at the end of two to five months to find out what had happened to them in their work. One thousand five hundred and fifty-seven visits were made to this group and 327 records secured. The total number of cases dealt with was 695. The total number of visits was 2,203. From these children and their families information was secured as to why they left school, the income of the family, the plans for work, and experience in work.
Economic pressure was found to be the least potent and the least frequent cause for children leaving school to go to work. Need for training in the trades is very important. Children should not be blindly guided into jobs. Miss Barrows thinks that there are no jobs for children under 16 that they ought to take.
576. **Boston.** Superintendent of public schools. Boston public schools. Annual report of the superintendent. Boston, Printing department, 1910. 157 p. plates. 8°. (School document no. 10, 1910)
Exhibiting especially situation with regard to vocational education and vocational direction.
577. **Burks, J. D.** Democracy in education. *Elementary school teacher*, 8: 130-42, November 1907.
An argument for the introduction of vocational training into the public schools. Shows that the loss of pupils in the upper elementary grades is due to the ill-adaptation of our educational organization. Concludes that adequate provision for vocational training, beginning at about the sixth year of school, would tend to prolong the school life and increase the vocational efficiency of the great mass of children.
Also in National education association of the United States. *Journal of addresses and proceedings*, 1907. p. 787-96, with different title.
578. **Butler, Elizabeth Beardaley.** Training in salesmanship. *In her* Saleswomen in mercantile stores, Baltimore, 1909. New York, Charities publication committee, 1912. p. 159-73.
Appendix B.—What the schools can do to train girls for work in department stores, by Mrs. Lucinda W. Prince, p. 187-93. Appendix C.—Salesmanship classes in the stores of Hale brothers, San Francisco, p. 200-5.
579. **Butler, Nicholas Murray.** Vocational preparation as a social problem. *Educational review*, 45: 289-97, March 1913.
Address before the educational committee of the Commercial club, of Chicago, Ill., December 14, 1912. Writer says: "To use existing industries, whether they be those of the farm, those of the shop, or those of the factory, as schools of apprenticeship, observation and training while the formal instruction goes on side by side for the one or two years' period provided—this is the essential point in the whole matter."
580. **Chancellor, William E.** The genuine democracy of the unique school system of Buffalo. *American school board journal*, 46: 9-14, 53-55, March 1913.
The city of Buffalo, N. Y., has 10,000 mechanics working in iron and in steel and 5,000 printers. A remarkable work is being accomplished by the public schools in vocational training, emphasis being put upon the particular trades in vogue in the city.

581. **City club of Chicago.** Report on vocational training in Chicago and in other cities. By a Sub-committee of the Committee on public education, 1910-11. Chicago, Published by the City club of Chicago, 1912. xiii, 315 p. 8°.

Committee consisted of G. H. Mead, E. A. Wreidt, and W. J. Bogan. Report in four sections. The first section contains the recommendations of the committee; the second presents considerable information about schools; the third gives facts concerning business colleges and commercial schools; the fourth discusses the results of tests made on boys who left school to go to work as soon as the law allowed, regardless of their advancement in the grades. Boys were examined with regard to their ability in simple arithmetic, civics, history, and English composition. Tests showed that the boys were very deficient in these studies.

The Committee recommends "a plan worked out in some detail, of a type of school in which half of the time in the seventh and eighth grades may be given to vocational work, while during the other half of the school time we are confident that as much can be accomplished in the academic studies as is accomplished to-day. We recommend for these vocational grades a school day of six hours instead of the present five hours and a rearrangement of the time given to different subjects.

"Our great contention is that vocational training be introduced into our school system as an essential part of its education—in no illiberal sense and with no intention of separating out a class of workmen's children who are to receive trade training at the expense of academic training."

In commenting on this report, the Elementary school teacher for January, 1913, says (p. 248): "The conclusions to which this committee comes are diametrically opposed to those which underlie the Massachusetts plan and to those which Mr. Cooley presents in his report to the Commercial club of Chicago. The position defended in the present report is, however, so typically American, so clearly feasible as a school program, and so simple to put into operation as contrasted with the plan of special and separate schools, that it is certainly worthy of careful consideration before any other course is adopted."

582. **Cooley, Edwin Grant.** The adjustment of the school system to the changed conditions of the twentieth century. In National education association of the United States. Journal of proceedings and addresses, 1909. p. 404-10.

Discussion: p. 410-15.

Also in Educational bi-monthly, 4: 1-11, October 1, 1909.

583. ——— The need for vocational schools. Educational review, 44: 433-50, December 1912.

A report to the Educational committee of the Commercial club of Chicago.

"It is," says the writer, "plainly impossible to provide in the present system of elementary and secondary schools the instruction recommended. Separate schools are necessary whose equipment, corps of teachers, and board of administration must be in the closest possible relation to the occupation."

584. ——— The problem of establishing vocational schools. School and home education, 32: 214-19, February 1913.

"If self-preservation through the training of the character of the future citizen is the justification for spending public money for schools, the state must enter the entire field of vocational education, and must provide for all—the artisan, the professional man, the farmer, and the merchant."

Writer says that such schools should be "separate, independent, compulsory day schools, supported by special taxes, carried on usually in special buildings." They should be administered by special boards of practical men and women, and taught by men trained in the vocations. There should be the closest possible co-operation between the school and the factory, etc.

585. **Crawshaw, F. D.** Manual arts: public school manual arts an agency for vocational education. Madison, Published by the board, 1912. 17 p. 8°. (Wisconsin. State board of industrial education. Bulletin no. 6)

Suggested possibilities for grammar grade adjustment. Specialization in the high school, etc. Says: "Put the special work followed by the pupil in his senior year under the supervision of the leaders in the industry represented." But the executive heads in the school system must remain in general control.

586. **Croswell, J. G.** The one thing needful. Educational review, 37: 142-59, February 1909.

"If our schools create this vocational atmosphere even in the culture studies, great improvements must follow . . . Under no vocational ideal of school instruction could the absurd proposition maintain itself that every child, in every public school, must study every subject."

587. **Dakin, W. S.** Vocational education for men in service. Vocational education, 2: 89-109, November 1912.
"Summarizes the efforts which have been put forth by numerous corporations and other large employers of labor to supply deficiencies in public education."
588. **Davis, Jesse B.** Vocational and moral guidance through English composition. English journal, 1: 457-65, October 1912.
589. **Dean, Arthur D.** Functions of a state board of education in the establishment of forms of special education. Pennsylvania school journal, 59: 315-19, January 1911.
590. ——— Vocational education; a reprint from the annual report of the Education department, submitted January 1910. Albany, New York (State) Education department, 1910. 26 p. 8°.
591. ——— Vocational schools. Albany, N. Y., 1912. 29 p. 8°.
Technical education, domestic economy and agricultural education in the state of New York. Reprinted from New York (State) Education department. 8th annual report.
592. **Downer, Harry E.** The boy and his job. Davenport, Iowa. The Contemporary club, 1911. 32 p. 8°.
593. **Dutton, Samuel Train.** The relation of education to vocation. Educational review, 12: 335-47.
Treats of the narrow bounds of early school education; development of commercial prosperity; schools backward in recognizing the scientific trend of the times. Discusses the deficiency in manual training; trade schools, etc.
594. ——— and **Snedden, David (Samuel).** Administration of vocational education. *In their* The administration of public education in the United States. New York, The Macmillan company, 1908. p. 404-25. ✓
References: p. 424-25.
595. **Eaton, J. Shirley.** Education for efficiency in railroad service. Washington, Government printing office, 1909. 159 p. 8°. (U. S. Bureau of education. Bulletin no. 10, 1909)
Discusses the apprenticeship system; vocational railroad schools; higher education for railroad careers, etc. Appendices contain statistics of railway apprenticeship; and the educational and welfare work on European railroads.
596. **Flexner, Mary.** A plea for vocational training. Survey, 22: 650-55, August 7, 1909.
Based on a study of 1,000 children who left school to work.
597. **Foos, Charles S.** [Report on Vocational training] *In* Reading, Pa. Board of school controllers. Minutes, 1909. p. 34-72.
Also in Reading, Pa. Board of education. Bi-ennial report, 1907-1909. Reading, Pa., Eagle book and job press, 1909. p. 514-50.
Answers to questionnaire from 100 cities: p. 525-50.
598. **Forbush, William Byron.** Vocational training and guidance. *In his* The coming generation. New York and London, D. Appleton and company, 1912. p. 136-50.
A brief but good review of the subject. Contains graphic statistics of the German system of industrial education. References: p. 150.
599. **Furney, Oakley.** Education with an aim to service. Vocational review, 2: 299-317, March 1913.
Describes work of the Albany (N. Y.) vocational schools. Illustrated.
600. **Gaylor, G. W.** Elimination and vocational training. Psychological clinic, 6: 69-73, May 15, 1912.
601. **Gillette, John Morris.** The sociological warrant for vocational education. American journal of sociology, 14: 219-32, September 1908.

602. ——— Vocational education. New York, Cincinnati [etc.] American book company [1910] vii, 303 p. 12°.
 Author sets out in summary form the development of vocational training and its many manifestations in modern and contemporary life and thought.
603. Goodwin, Edward J. The present status of public education. In New York (State) University convocation, 1908. Albany, University of the state of New York, 1909. p. 75-89. (Education department. Bulletin no. 443, March 15, 1909)
 Discussion: p. 89-90.
 "The differentiation . . . at the beginning of the seventh school year should be threefold. It should provide (1) shopwork, (2) suitable instruction in business subjects and (3) foreign language study."
604. Gorst, Harold E. An educational revolution. North American review, 189: 372-85, March 1909.
 Advocates vocational training.
605. Gustafson, Lewis. A new task for the public schools. Vocational education, 1: 145-58, January 1912.
 A statement of some of the fundamental principles which must control the development of vocational education.
606. Haney, James Parton. Vocational training and trade teaching in the public schools. Philadelphia, American academy of political and social science [1909] 23-32 p. 4°. (Publications of the American academy of political and social science, no. 570)
 Reprinted from the Annals of the American academy of political and social science for January, 1909.
 "While trade . . . teaching as such can not be advocated for the immature pupils of the elementary schools, *preparatory vocational training* must come to be seen as a necessary preliminary to the development of what may be termed the clientele of the trade school."
607. ——— Vocational work for the elementary schools. Educational review, 34: 335-46, November 1907.
 Considers the necessity of offering some form of vocational training in the elementary school, and recommends that for certain schools a modified form of the course of study be arranged to permit vocational training in the seventh and eighth years.
608. Hanus, Paul Henry. Vocational education. In New Jersey state teachers' association. Annual report and proceedings, 1907. p. 78-89.
 The need of industrial schools to supplement the public schools, offering a course of four years, with evening instruction for men and women already engaged in the trades.
609. James, Edmund Janes. Vocational training and its future. Vocational education (Peoria) 1: 1-9, September 1911.
 "Business men can do an immense amount to stimulate and help this development, greatly to the benefit not only of the young fellows who are going into business, but, above all, to the community."
610. Kane, Thomas Franklin. The maintenance of the college of liberal arts in a state university in competition with professional and technical colleges in the same institution. In National association of state universities. Transactions and proceedings, 1910. Hamilton, Ohio, Republican publishing company [1910] p. 120-39.
 Discussion: p. 139-64.
611. Kerschensteiner, Georg. Three lectures on vocational training . . . Delivered in America under the auspices of the National society for the promotion of industrial education. Chicago, Published by the Commercial club of Chicago, 1911. 52 p. 8°.
 The fundamental principles of continuation schools, p. 1-16.
 The organization of the continuation school in Munich, p. 17-26.
 The technical day trade schools in Germany, p. 30-62.

612. **King, Charles A.** Pre-vocational training. *Education*, 33: 105-8, October 1912.

Argues that a system of vocational instruction should include training of both sexes, and makes provision for students between 14 and 16 years of age.

613. **Lapp, John A.** The present tendencies in vocational education. *Journal of education*, 76: 683-84, December 26, 1912.

"The movement began in Massachusetts with separate schools under separate boards, both state and local. That has been changed to permit either a separate school or a school as an integral part of the regular school system. Wisconsin has adopted the separate school idea, and such a plan is proposed in Illinois; the states of New York, New Jersey, Ohio, and Maine make the work a part of the school system. Indiana follows the latter group."

614. **Leavitt, Frank M.** The relation of the present movement for vocational education to the teaching of the mechanic arts. *Elementary school teacher*, 12: 158-68, December 1911.

Shows the value of "*pre-apprentice*" or "*pre-vocational*" work in the schools.

615. ——— Vocational education in the Boston public schools. *Vocational education*, 1: 316-31, May 1912.

"A comprehensive and readable presentation of the remarkable provision made for vocational opportunities for all the children by a large city school system."

616. ——— Vocational purpose in the Manual training high school, Indianapolis, Indiana. *Vocational education*, 2: 36-52, September 1912.

"A discriminating discussion of the way in which one progressive community is attempting to secure the maximum of service from its high school."

617. **McElroy, James F.** The most urgent need of our educational system is an adequate provision for the vocational needs of children destined for industrial and domestic pursuits. In *National education association of the United States. Department of superintendence. Journal of proceedings and addresses, 1908.* p. 48-52.

618. **Mayer, Mary Josephine.** Vocational training in our public schools. *American review of reviews*, 45: 449-56, April 1912.

Argues that vocational training is not opposed to culture. Reviews the situation in this country.

619. **Miller, William T.** Vocation teaching. *Atlantic monthly*, 104: 644-47, November 1909.

620. **Monaghan, J. C.** Vocational training and the manufacturer. *American school board journal*, 39: 6-7, September 1909.

621. **Morrison, Henry C.** Vocational training and industrial education. *Educational review*, 36: 242-54, October 1908.

"So far as industrial education seeks to be a more efficient means of social betterment, so far will it be welcome; . . . so far as it involves a tendency to stratify American society, it must be held to be contrary to the spirit of our institutions."

622. **Moulton, Leonard B.** A course in salesmanship. *School review*, 20: 56-59, January 1912.

Methods pursued in the Boston high school of commerce.

623. **Mowry, Duane.** Vocational or cultural education—which? The Amherst idea. *Education*, 32: 373-76, February 1912.

Declares that specialization in education is one of the necessities in this work-a-day world, but we should not forget that mere specialization is not the whole of the educational field. Commends the Amherst idea.

624. **Münsterberg, Hugo.** Vocation and learning. *University City, St. Louis, Mo., The Peoples university* [1912] 289 p. 12°.

An analysis of the demands made by the various vocations, considering not merely the technical requirements, but especially the deeper inner demands of our occupations and professions. In addition to a presentation of general principles, the following vocations are individually analyzed: Engineer, farmer, business man, teacher, domestic worker, secretary, librarian, journalist, physician, lawyer and politician, architect.

625. **Mussey, H. R.** Education and pay of head and hand. *Educational review*, 42: 450-64, December 1911.

Advocates vocational training and guidance.

626. **New York (State) Education department.** Vocational schools. *In its Annual report, 1909.* Albany, N. Y., State education department, 1910. p. 517-41.

Reprinted.

Schools organised under the law of 1908, p. 535.

627. **Page, Carroll S.** Vocational education. Speech . . . delivered in the Senate of the United States, June 5, 1912, on Senate bill 3, to co-operate with the states in encouraging instruction in agriculture, the trades and industries, and home economics in secondary schools, etc. Washington, Government printing office, 1912. 134 p. 8°. ([U. S.] 62d Cong., 2d sess. Senate. Doc. 845)

Discusses provisions of the bill. Emphasizes the importance of vocational education. Says: "It is a question which will, in my judgment, settle in great measure the quality of our citizenship in the generation upon which we are now entering. It is a question which will profoundly affect the cost of our food supply as well as the amount which our workers may earn with which to meet that higher cost of living which is upon us. It is a question which involves appropriations from the National treasury aggregating nearly \$15,000,000 annually." . . . "I believe I voice the sentiment of hundreds upon hundreds of the more thoughtful educators and publicists of our land to-day, who give it as their opinion that the curriculum of the elementary or graded school is largely impracticable and does not fit for the great struggles of life that are before them the 92 per cent of our boys and girls who never pass beyond the eight grades."

The appendix contains indorsements of the Page bill from prominent educators, editors, and public men.

628. **Parsons, Frank.** Choosing a vocation. Boston, Houghton Mifflin co., 1909. 165 p. 8°.

Contains valuable suggestions for the teacher in upper grades and high schools.

629. **Prosser, Charles A.** Massachusetts state-aided vocational schools. *In Massachusetts. Board of education. 75th annual report . . . January 1912.* Boston, 1912. p. 48-65. (Public document no. 2)

The movement for vocational training has spread rapidly in Massachusetts since the first law giving state aid and encouragement to practical training was passed in 1906. Says the report: "In the year 1907-8, 6 schools gave, through day or evening classes, training in 4 occupations to about 1,400 persons. During the last school year there were 21 schools instructing almost 6,000 persons through day, part-time, and evening classes, fitting for more than 50 occupations within more than 15 distinct industries. It is probably safe to say that for the present school year, 1911-12, there will be a total registration of more than 7,000 pupils in not less than 40 state-aided vocational schools."

Give interesting statistical diagrams showing the growth of state-aided vocational schools; investment and expenditures of schools; and industries for which training is given, as follows: painting, stoneworking, textiles, agriculture, jewelry, bookbinding, printing, electrical working, high power machine work, millinery, dressmaking, household arts, motive power, metal working, and woodworking.

630. ——— Organization and administration of state-aided vocational schools. *In Massachusetts. Board of education. 75th annual report . . . January 1912.* Boston, 1912. p. 137-88. (Public document no. 2)

CONTENTS.—I. What is a state-aided vocational school. II. The establishment of state-aided vocational schools. III. The administration of vocational schools. IV. Courses of study and methods of instruction.

Appendices 1 and 2 contain data concerning legislation; Appendix 4, "Information regarding the approval of the qualifications of teachers in the state-aided vocational schools of Massachusetts," p. 183-88.

631. **Richmond, Sada Foute.** The vocational school. *Progressive teacher*, 18: 35-38, April 1912.

An account of the first vocational public school started in the South, at Memphis, Tenn.

632. **Righter, Leonard and others.** Educational survey preparatory to organization of vocational education, by Leonard Righter . . . Social phases of industrial life and vocational guidance, by Robert J. Leonard. With an introduction by Frederick G. Bonser. New York city, Teachers college, Columbia university, 1913. 64 p. diagrs. 8°. (Teachers college record. vol. XIV, no. 1)
Bibliography: p. 43.
The author of the first paper describes the manner in which the survey, used for many purposes at the present time, may be adapted to educational purposes, especially to the adjustment of the school curriculum to meet the needs of the community. The second paper emphasizes the need for the development in the schools of a knowledge of industrial conditions and the importance of industries in the national life.
633. **Roberts, Arthur W.** The basis of an efficient education—Culture or vocation. School review, 15: 358-74, May 1907.
Argument against too early differentiation for vocational training.
634. **St. Louis, Mo. Board of education.** Vocation courses. *In its Annual report*, 1910. p. 116-32.
635. **Shields, Thomas Edward.** Survey of the field. [Vocational education] Catholic educational review, 5: 139-56, February 1913.
Discusses especially the report of Mr. Edwin G. Cooley, advocating a separate system of vocational schools. The author does not approve of adding a special tax to the heavy burden the people are now bearing in order that vocational schools may be built. He claims that "If industrial schools are to be erected and equipped, the financial burden of so doing should evidently be borne by the interests that would profit most by such a system of schools."
636. **Snedden, David S.** The combination of liberal and vocational education. Educational review, 37: 231-42, March 1909.
Presents three methods of combining vocational with liberal education, and analyzes same.
637. ——— Debatable issues in vocational education. Vocational education, 2: 1-12, September 1912.
Gives "a few of the problems of vocational education with reference to which there is now needed fuller analysis, discussion, and experimentation."
638. ——— The practical arts in liberal education. Educational review, 43: 378-86, April 1912.
States that "in practical arts teaching the place for drill, systematic approach, and approximation of journeymen's standards, is in the vocational school."
639. ——— The problem of vocational education. Boston, New York [etc.] Houghton Mifflin company [1910] vi, 86 p. 12°. (Riverside educational monographs, ed. by H. Suzzallo)
A concise but comprehensive survey of present conditions and prospects. Discusses definitions of a liberal education; the need of vocational education; state support, types, and pedagogical divisions of vocational education. Treats of the relation of vocational education to manual training, problem of women in industry, and a variety of related topics. Dr. Snedden is a recognized authority in this important educational field.
640. **Springfield, Mass. School board.** The vocational school. *In its Report*, 1909. p. 27-31.
641. **Tolman, William H.** Social engineering; a record of things done by American industrialists employing upwards of one and one-half million of people. With an introduction by Andrew Carnegie. New York & London, McGraw-Hill book company, 1909. viii, 384 p. 8°.
Discusses among other topics vocational education, p. 267-97. Shows what the various manufacturing companies have done to further the education of employees.
642. **United States. Congress. House. Committee on agriculture.** Vocational education. Hearings before the Committee on agriculture . . . on H. R. 23581. April 23-26, 1912. Washington, Government printing office, 1912. 152 p. 8°.
John Lamb, chairman.
Treats of technical education, domestic economy, and agricultural education.

643. ———— **Senate. Committee on agriculture and forestry.** Vocational education. Hearings before the Committee on agriculture and forestry . . . April 12 and 13, 1910, on the bill (S. 4675) to co-operate with the states in encouraging instruction in agriculture, the trades, and industries . . . Washington, Government printing office, 1910. 82 p. 8°.
644. ———— **Committee on agriculture and forestry.** Vocational education. Report of the Committee . . . United States Senate . . . on Senate bill 3 . . . Washington, Government printing office, 1912. 75 p. 8°. [62d Cong., 2d sess. Senate. Rept. 405]
Calendar no. 348.
645. ———— **Committee on agriculture and forestry.** Vocational education. Report of the subcommittee . . . United States Senate, Sixty-second Congress, on Senate bill 3 . . . Washington, Government printing office, 1912. 71 p. 8°.
646. **Warriner, E. C.** Industrial and vocational training in the public schools. *In* Michigan. Superintendent of public instruction. Annual report, 1909-10. Lansing, Michigan, Wynkoop Hallenbeck Crawford co., state printers, 1910. p. 14-21.
Reprinted. 10 p. 8°. (Bulletin no. 2, 1909)
647. **Weaver, E. W.** The vocational adjustment of the children of the public schools. High school teachers association of New York City [1910] 12 p. 8°.
648. **Weeks, Ruth Mary.** The people's school. A study in vocational training. Boston, New York [etc.] Houghton Mifflin company [1912] 208 p. 12°. (Riverside educational monographs, ed. by H. Suzallo)
Bibliography: p. 195-202.
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649. **Wooley, Helen T.** Child labor and vocational guidance. Child labor bulletin, 1: 24-37, June 1912.
Gives some interesting schedules of the industrial history of children.

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650. **Boston, Mass. Business men's advisory committee.** Reports regarding the Boston school of commerce, 1909, 1910.
F. P. Fish, chairman.
Traveling scholarships to South America and Central America, Germany and Belgium.
651. **Brandon, Edgar Ewing.** Commercial education [in Latin America] *In his* Latin-American universities and special schools. Washington, Government printing office, 1913. p. 94-103. (U. S. Bureau of education. Bulletin no. 30, 1912)
652. **Brett, George P.** The need of commercial education. Independent, 72: 728-30, April 4, 1912.
The author says that "for the children of our cities, about 90 per cent of whom leave school at about the age of 14 and enter business, commercial education is vitally necessary."
653. **Fee, Ira B.** Business course for high schools of smaller cities. American school board journal, 45: 15, October, 1912.
654. **Great Britain. Foreign office. Germany.** Report on commercial instruction in Germany . . . London, Printed for H. M. Stationery office, by Harrison and sons, 1904. 109 p. 8°. ([Parliament. Papers by command] Cd. 2237. No. 619 miscellaneous ser. Diplomatic and consular reports)

655. **Herrick, Cheesman A.** *Meaning and practice of commercial education.* New York & London, The Macmillan company, 1904. xv, 378 p. 12°.
- Select bibliography: p. 360-70.
- "The kind of education urged in this book, it is believed, will teach men the meaning of business and raise commerce above narrow commercialism. Commerce we must have. Two main sources of the book are the announcements and reports of schools and expressions from business men and students of education."
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656. ——— *and others.* The proper place in American education for instruction in commercial and industrial subjects. *In* Association of colleges and preparatory schools of the Middle States and Maryland. Proceedings, 1905. p. 11-36.
657. **Hooper, Frederick and Graham, James.** *Commercial education at home and abroad . . .* London & New York, Macmillan and co., ltd., 1901. xv, 267 p. illus. 12°.
- Discusses materials for a scheme of commercial education for Great Britain, also suggested curricula for all grades of educational institutions. Contains chapter on commercial education on the Continent, and the position in the United States in 1901.
658. **James, Edmund J.** *Commercial education.* *In* Education in the United States. A series of monographs, ed. by Nicholas Murray Butler. New York [etc.] American book company, 1910. p. 655-703.
- Shows the evolution of commercial education in this country, beginning with business colleges, etc., to the introduction of commercial subjects into the public high schools. Gives courses of study and statistics of schools.
659. **Michigan political science association.** *Convention of educators and business men, Ann Arbor, Mich., February 5-7, 1903.* Ann Arbor, 1903. vii, 229 p. 8°. (Publications of the Michigan political science association. v. 5, no. 2, June 1903)
- Discusses every phase of the subject. Among other things the character of instruction in history, economics, mathematics, statistics, accounting and law needed by students in commerce.
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661. **New England high school commercial teachers' association.** *Report of the ninth annual convention . . . held at Simmons College, Boston, Mass., October 21, 1911.* 34 p. 4°.
- Contains: 1. A. J. Meredith: The professional and technical training of commercial teachers, p. 5-9. 2. W. A. Hawkins: Bread and butter education, p. 10-12. 3. A. E. Holmes: What a business man expects of his stenographer and bookkeeper, p. 13-19. 4. W. M. Cole: Some connotations of teaching for business, p. 20-24.
662. **Thompson, F. V.** *The commercial high school and the business community.* *School review,* 18: 1-11, January 1910.
- The work of the Boston business men's advisory committee, organized 1906, in connection with the Boston high school of commerce, and its traveling scholarships or students.
663. **United States. Bureau of education.** *Commercial education in Switzerland.* *In* Report of the Commissioner for the year 1902. Washington, Government printing office, 1903. p. 837-55.
- Gives historical review; status of existing status of commercial schools, with curricula, etc. Illustrated.
664. **University of the state of New York.** *Commercial education in high schools . . .* Albany, University of the state of New York, 1903. 127 p. 8°. (College department . . . Bulletin 23)

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665. **Andrews, Benjamin E.** The schools of household and industrial arts, Teachers college. Columbia university quarterly, 12: 397-407, September 1910. illus.
666. **Arnold, Sarah Louise.** The Sargent industrial school; a successful experiment in industrial training. Survey, 24: 32-39, April 2, 1910.
School is located at Matteawan, N. Y. Founded and developed by Mrs. Winthrop Sargent in 1878. Central purpose of school is "to provide essential instruction in the arts and industries belonging to home making." Gives programme of classes, etc.
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669. **Frank, Louis.** L'éducation domestique des jeunes filles; ou, La formation des mères. Paris, Larousse [1904] xxiv, 547 p. illus. 8°.
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670. **Fuller, Alice M.** Housekeeping and household arts . . . Manila, Bureau of printing, 1911. 178 p. illus. 8°.
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675. **Kinne, Helen.** Equipment for teaching domestic science. Boston, Whitcomb & Barrows, 1911. v, 96 p. illus. 8°.
Estimates, descriptions, and suggestive lists given for complete equipment for instruction in domestic science.
676. **Moll-Weiss, Augusta.** Les écoles ménagères à l'étranger et en France . . . Paris, A. Rousseau, 1908. xxvi, 344 p. illus. 8°.

677. **Münsterberg, Hugo.** The college and the household sciences. Good-house-keeping, 56: 40-48, January 1913.
Advocates household courses in colleges and universities, and shows the insistent demand for such instruction.
678. **Ravenhill, Alice, ed.** Household administration, its place in the higher education of women . . . New York, H. Holt and company, 1911. x, 324 p. illus. 8°.
Contains papers by noted writers on the subject of domestic science. Introduction, by Catherine Schiff, is a brief historical sketch of woman's position in the family.

XXIV. VOCATIONAL EDUCATION IN FOREIGN COUNTRIES.

679. **Brunot, H. P.** Technical education in France. In U. S. Department of commerce and labor. Daily consular reports, no. 2178, February 8, 1905. Washington, Government printing office, 1905. 8 p. 8°.
Reviews the vocational and trade schools of France. Gives curricula, sources of income, administrative methods, types of teachers, etc.
680. **Bustico, Guido.** L'educazione vocazionale e la scuola. Desenzano, F. Legati e c., 1909. 16 p. 8°.
681. **Consumers' league of Connecticut.** A glance at some European and American vocational schools for children from twelve to sixteen years of age. Hartford, the Consumers' league, 1911. 64 p. front., pl. 8°.
682. **Cooley, Edwin G.** Vocational education in Europe. Report to the Chicago commercial club. Chicago, R. R. Donnelley & sons co., 1912. 347 p. illus. 8°.
"This report undertakes to describe some of the typical vocational schools observed by the author during his year in Europe. The major part of the report is devoted to the educational institutions of Germany. Some special institutions in Austria and Switzerland are described on account of their relations to the general problem of vocational education."
683. **Hylla, E.** Die verwicklichung der arbeitschulideen in elementarunterricht. Pädagogische warte, 20: 13-18, January 1, 1913.
Urges that teachers consider carefully the vocational school idea as a special field of opportunity in the elementary schools.
684. **Manny, Frank A.** A German contribution to education for vocation and citizenship. School review, 16: 154-61, March 1908.
685. **Mittenzweh, L.** Die berufswahl. Leipzig, Dürr, 1910. xv, 217 p. 8°.
686. **Nabel, Eugene.** The schools of Switzerland. Educational foundations, 23: 95-101, 130-84, 297-300, October, November 1911, January 1912.
Contains a brief account of the Swiss societies for promoting commercial education.
687. **Rathmann, C. G.** Vocational training in Germany. Educational foundations, 23: 155-70, 228-39, November, December 1911.
A discussion of the continuation schools of Germany—commercial, agricultural, etc.
688. **United States. Bureau of education.** The Prussian system of vocational schools from 1884 to 1909. In Report of the Commissioner for the year 1910. Washington, Government printing office, 1910. v. 1. p. 301-43.
A résumé of the third report of the Royal Prussian state industrial office, 1909. (Verwaltungsbericht des Königlich Preussischen Landesgewerbeamts. Berlin, Carl Heymanns, 1910. 436 p. tables)
Gives an historical review, followed by detailed accounts, statistical and textual, of the various classes of schools which constitute the system considered.
689. **Ware, Fabian.** Educational foundations of trade and industry. New York, D. Appleton & co., 1901. 8°.
Describes vocational systems of Germany and France. Shows how these countries have encouraged the educational foundations for trade and industry.

XXV. VOCATIONAL GUIDANCE.

690. Bader, Paul. Die aufgabe der schule bei der berufswahl und stellenvermittlung der jugendlichen. *Archiv für pädagogik*, 1: 129-38, December 1912.
Describes current attempts at vocational guidance in connection with German schools.
691. Bloomfield, Meyer. Vocational guidance. *In National education association of the United States. Journal of proceedings and addresses*, 1912. p. 431-36.
Shows what has been accomplished in Boston. Reviews the situation throughout the country. Emphasizes the fact that thousands of children drop out of school, through no economic pressure, to go to work as soon as the law permits. See also *Survey*, 30:183-88, May 3, 1912.
692. ——— Vocational guidance of youth. Boston, New York [etc.] Houghton, Mifflin company [1911] 124 p. 12°. (*Riverside educational monographs*, ed. by H. Suzzallo)
"While making no pretense towards a comprehensive analysis or final definition of ways and means, it will perform an invaluable office in drawing attention to the great need of work in this field, in clearing up misconceptions, in guarding against dangerous pitfalls, and in pointing the way towards practical possibilities."—*Survey*, 26: 464, June 24, 1911.
693. Boston, Mass. Committee on vocational direction. Report. *In Boston public schools. Annual report of the superintendent*, July 1910. p. 147-51. (Appendix G)
Chairman, George A. Tyner.
See also *Annual report of the superintendent*, December 1911.
694. Brooks, Stratton Duluth. Vocational guidance. *School review*, 19: 42-50, January 1911.
The work of the Boston vocation bureau and Public schools vocation direction committee, the High school of commerce, and Trade school for girls.
695. Davis, Jesse B. Vocational guidance. A function of the public school and its application to the commercial department. *In Journal of the Michigan schoolmasters' club*. 46th meeting, held in Ann Arbor, March 29-April 1, 1911. Ann Arbor, Mich., Published by the club [1911] p. 119-28.
Author made a study of 531 boys in the high school of Grand Rapids, Mich. Gives outlines of a course of study and discusses the function of the vocation bureau. He says: "The commercial course should be the largest department in the modern high school."
696. ——— Vocational guidance in the high school and its application to the church and Sunday school. *Religious education*, 7: 110-18, April 1912.
A system of vocational guidance in use in the Central high school of Grand Rapids, Mich.
697. Diggs, Annie L. Bedrock. Education and employment, the foundation of the Republic. Detroit, Mich., Social center publishing co. [1912] x, 70 p. 8°. Based on the proposition that a bureau of employment should be established in connection with each and every educational institution throughout the country.
698. High school teachers' association of New York City. Year-book, v. 5, 1910-1911. 142 p. 8°. Contains papers on vocational guidance in the high schools of New York, p. 17-25; final report of the subcommittee on a preparatory course for boys entering commercial life, p. 85-105.
699. ——— Choosing a career; a circular of information for boys. New York, Students' aid committee [1909] 22 p. 8°.
700. ——— Choosing a career; a circular of information for girls. New York, Students' aid committee [1909] 26 p. 8°.
701. ——— Students' aid committee. Directing young people in the choice of a vocation. [Brooklyn, N. Y.] Printed for the Students' aid committee [1910] 16 p. 8°.
702. Hutchinson, T. Herbert. Vocational guidance. Association seminar, 20: 427-52, June 1912; 21: 9-27, 46-60, October, November 1912; 21: 84-101, December 1912; 128-47, January 1913.
Bibliography: p. 145-47.
Gives evidence of the necessity of training for efficiency, and points out the need and importance of vocational guidance.
Pt. 3 deals with the history of vocational guidance.

703. **Keeling, Frederic.** The labor exchange in relation to boy and girl labour. London, P. S. King & son, 1910. 76 p. 12°. Bibliography: p. 73-76.
704. **Knox, George Platt.** How should the school system contribute to an intelligent choice of vocation on the part of the pupil? In National education association of the United States. Journal of proceedings and addresses, 1912. p. 417-25.
 Urges the value of preparation. This preparation should both precede and follow the choice of vocation.
705. **Lewis, E. E.** Studies in vocational guidance. School and home education, 32: 135-38, 212-14, 247-51, December 1912; February, March 1913.
 A study of the employment found by 4,386 children who left the schools of St. Louis and took employment certificates.
706. **Lord, Everett W.** Vocational direction, or the boy and his job. In National child labor committee. Proceedings of 6th annual conference, Boston, January 13-16, 1910. New York, 1910. p. 73-85.
 "Boys find themselves in their vocations as the result of custom, heredity, propinquity, or accident far oftener than through deliberate and conscious choice." Advocates vocational guidance.
707. **McKeever, William A.** Assisting the boy in the choice of a vocation. Manhattan, Kans., 1909. 15 p. 8°. Reprinted from the Industrialist, v. 35, no. 41, June 26, 1909.
708. **National conference on vocational guidance.** First. Boston, November 15-16, 1910.
 Under auspices of the Boston chamber of commerce and the Vocation bureau of Boston. Forty-five cities sent delegates. Manufacturers, workmen, business men, social workers, and educators participated in the discussions.
 The activities of vocational guidance, as outlined at this conference, are as follows: First, giving information about vocations in general and about opportunities for work in the immediate vicinity, and also concerning opportunities for receiving vocational instruction. The second group relates to children, when it is necessary to make the transition from school to work, and advising as to the importance of wise choice between temporary employment, however remunerative, and positions which offer opportunity for advancement. The third group relates to the guidance and sympathetic counseling of the young worker subsequent to his entry into his new duties. A fourth group looks to the establishment of vocation bureaus for the collection of information about opportunities for boys and girls in the trades and stores, as well as the provision for vocational training, and the classification of this information in forms available for ready reference.
 The opinion was expressed that ultimately this function should be taken over by the public schools.
 See Survey, 25: 319-20, November 26, 1910 (Bloomfield, Meyer) also School review, 19: 57-62, January 1911 (Leavitt, F. M.)
709. ———. **Second.** New York, October 23-26, 1912.
 Topics discussed: Placement; Follow-up; Study of occupations; Scholarships; Vocational analysis; Opportunities for vocational training; Methods of vocational direction; and Relation of vocational guidance to the employer.
 Reviewed at length by W. T. Bawden, in Vocational education, 1: 209-17, January 1913. On the subject of "finding jobs for boys and girls," the sentiment of the majority of those participating in the discussion was "in favor of making every effort to retain children under 16 in school, in order to train them for more skilled occupations."
 The following definite questions regarding vocational training in the schools were raised by the conference:
 "Shall industrial training aim to fit children for particular trades, or shall it educate them in elementary processes and underlying principles?
 "Shall it begin early in the child's school life, or at the age of fourteen when so many now break away from the prescribed curriculum?
 "Shall it be grafted on the present elementary courses, or be taught in separate institutions?
 "Can industry be prevented from compelling the schools to give just enough training to meet industry's immediate needs, and no more?
 "Is it advisable to raise the compulsory school age two years, or with the curriculum in its present state is this simply prescribing a larger dose of something already seen to be inadequate and unsuitable?

"On the other hand, will raising the age limit, by throwing back upon the schools thousands of boys and girls who now go to work as soon as they can, force the schools to a quicker adjustment of education to needs?"

It was declared to be fundamentally wrong "that any untrained child, without knowledge of industrial processes or skill in the use of tools, whose aims are vague and aptitudes unknown, should be allowed to work. It is an aggravation of this wrong to allow such a child to take a job which will not supplement previous education, or open the way to skill and independence. Yet children are going into just such work to-day. Therefore, we are but tolerating an intolerable situation when we accept school and industry on this basis and try to put each individual into the best job available for him. Our task is twofold. We must reconstruct our system of education so that it will fit youth for the work which it will have to do; we must also study the processes and needs of industry so thoroughly that every child shall have the maximum of information on which to base his choice of work. Then, perhaps, we must go even farther and reorganize industry in such a way that it will hold positive cultural values for those who devote to it their full energies of mind and body."

An excellent résumé of the conference is contained in *Survey*, 29: 225-28, November 23, 1912. One of the subjects under discussion was "Why children leave school." Attempts have been made to ascertain why so many children leave school as soon as the law permits. The *Survey* commenting upon this says:

"A recent inquiry of the Federal Government conducted in six cities proceeded upon the basis that any family which had a per capita income of less than \$1.50 a week would need outside assistance to keep its children in school. It was found that in 25 per cent of the 524 families studied the income was below this amount, and it was therefore concluded that 25 per cent of the children in this group left school because of 'economic pressure' within the home. Findings of the Vocational guidance survey of New York (now called the Vocational education survey and a part of the Public education association) which corroborated this study were made public for the first time at the conference."

710. **Prosser, C. A.** Practical arts and vocational guidance. *Manual training magazine*, 14: 209-21, February 1913.

An interesting presentation of the subject of vocational guidance. Shows the importance of the elementary school period. Discusses the problems that confront the teacher. If training in the practical arts is to assist boys "to find themselves in order that at 14 they may make an intelligent choice of their work for the future, it must be varied."

711. **Providence, R. I. School committee.** Vocational talks. *In its Report*, 1909-1910. p. 59-64.

Subjects of talks given the pupils not going on into high school from 8th grade, in Providence. p. 61-62.

712. **United States. Bureau of labor.** Vocational guidance. *In its Twenty-fifth annual report*, 1910. p. 410-67.

Contains history of the movement. Work in New York City and Boston. Statistics of principal opportunities for industrial education in Boston, etc., compiled by the educational department of the Women's municipal league, April 1910. Gives forms, blanks, and records used.

713. **White, Frank M.** Business men in the making. *Outlook*, 98: 989-97, August 26, 1911. illus.

Student aid and vocational advice.

VOCATION BUREAUS.

714. **Allen, Frederick J.** The Vocation bureau and the Boston school system. *National municipal review*, 2: 108-10, January 1913.

715. [Buffalo, N. Y. Vocation bureau] *American school board journal*, 42: 20, May 1911.

716. **Gordon, M. M. Ogilvie.** Juvenile employment bureaus. *Contemporary review*, 99: 723-32, June 1911.

Describes Edinburgh, Scotland, system.

717. [London schools] Employment bureaus . . . *In Brooklyn teachers' association. Report*, 1908-1909. p. 35-37.

718. **Manhattan trade school for girls (New York City)** Placement bureau. *Teachers college record*, 10: 291-95, September 1909.

Organized, October 1908.

719. [Rochester, Minn., "job" bureau] *American school board journal*, 42: 43, June 1911.

720. Saginaw (Mich.) high school. Employment bureau. Moderator topics, 31: 543, March 16, 1911.
721. Somerville, Mass. School committee. Committee on vocational guidance. *In its Annual report*, 1910. p. 23.
722. [Stephenson, George B.] Scholars' employment bureau in Liverpool. *In* North Carolina association of city public school superintendents and principals. *Proceedings and addresses*, 1911. Raleigh, Edwards & Broughton printing co., 1911. p. 93.
723. United States. Bureau of education. Juvenile labor bureaus and vocational guidance in Great Britain. *In its Bulletin* no. 11, 1912. Washington, 1912. p. 13-17.
Shows what is being done in Birmingham, London, and Edinburgh. "In London, where poverty exists in its greatest extent and complications, the public school is rapidly becoming the chief center of the movement for social and industrial reform."
724. Vocation office for girls, Boston. Vocations for Boston girls . . . Boston, The Girls trade educational league [c 1912] 1 v. 8°. (Bulletin no. 4)
Contains references.

XXVI. TRADES TRAINING.

725. Alexander, Magnus W. The training of men—a necessary part of a modern factory system. [New York, 1910] p. [33]-49. 8°.
Reprint from the Journal of the American society of mechanical engineers [January 1910].
726. Apprenticeship and skilled employment association. Trades for London boys and how to enter them. London, New York, Longmans, Green and co., 1908. 170 p. 8°.
A very detailed consideration of the advantages of different trades and of the schools which offer courses preparing pupils for these trades.
727. Ash, William C. Solving of the skilled mechanic problem by the public trade school. Pennsylvania school journal, 59: 549-53, May 1911.
Investigation of industrial and trades education in 60 cities.
728. Bolen, George L. Getting a living. New York, Macmillan, 1903. 769 p. 8°.
Discusses (Chapter XI) the function of shop schools, manual training, and trade schools. Attitude of organized labor toward trade schools.
729. Bruere, Henry. An investigation of trade and industrial schools. Chicago, The International harvester co., 1904. 50 p. (Out of print)
Part I of report deals with industrial trade schools of the South, and Part II with Northern industrial and trade schools and technical institutes. Schools of technology not included. The article on factory education is reprinted in *The Commons* [now *The Survey*] 9: 235-38, June 1904.
730. Citizens' trade school convention. Proceedings and addresses given at Indianapolis, June 10-12, 1907. [Indianapolis, Winona technical institute] 53 p. 8°.
Addresses by Frank Gunsalus, J. A. Emery, P. M. Kling, Walter H. Page, J. W. Van Cleave, Anthony Ittner, Arthur D. Dean.
731. Dean, Arthur D. Principles and methods to be pursued in organizing trade schools. *In* Massachusetts. Bureau of labor. Bulletin no. 43, September 1906. p. 313-22.
732. ——— Trade schools—Private initiative creates public enterprise. *In* Citizens' trade school convention. Proceedings and addresses, 1907. [Indianapolis, Winona technical institute] p. 44-53.
733. Dooley, William H. Practical education for industrial workers. *Educational review*, 38: 261-72, October 1909.
734. Draper, Andrew Sloan. The adaptation of the schools to industry and efficiency; address . . . before the National education association, Cleveland, Ohio, June 29, 1908. Albany, N. Y. [1908] 19 p. 8°.
Proposes a plan for factory and trades schools, and shows the relationship of these schools to the public school system.

735. ——— From manual training to technical and trades schools. *Educational review*, 35: 401-11, April 1908.
The writer contends that "the rational equilibrium between the exclusively intellectual and the decidedly industrial interests of the country must be restored and can hardly be restored without" the trades and technical schools.
736. ——— Our children, our schools, and our industries; commissioner's special theme, annual report 1908. Albany, N. Y. [1907] 48 p. 8°.
Also in New York state teachers' association. Proceedings, 1907. Albany, University of the state of New York, 1908. p. 32-78. (Education department. Bulletin no. 424. May 1908)
737. Freeman, Sarah J. The educational value of bookbinding. *Kindergarten-primary magazine*, 20: 156-58, 210-11, 243-45, January-March 1908.
738. Fullan, M. Thomas. Advantages of the trade school over the apprenticeship system. In Southern educational association. Journal of proceedings and addresses, 1908. p. 541-50.
739. Hanus, Paul H. Public trade schools. A stenographic report of a commencement address delivered May 1909. (Winona technical institute. Bulletin, August 1910)
740. Ittner, Anthony. The history of trade schools. In Citizens' trade school convention. Proceedings and addresses, 1907. [Indianapolis, Winona technical institute] p. 37-44.
741. James, Edmund James. Public trade schools and technical high schools. In National association of state universities. Transactions and proceedings, 1908. Bangor, Maine, Bangor co-operative printing co. p. 309-19.
742. Kimmins, C. W. Trade schools in London. *Elementary school teacher*, 10: 209-19, January 1910.
743. Lovejoy, Owen B. Will trade training solve the child-labor problem? *North American review*, 191: 773-84, June 1910.
744. MacNary, Egbert E. Printing in a manual training shop. *Manual training magazine* 10: 41-49 October 1908.
745. Monaghan, James C. From the standpoint of economic and manufacturing interests, should special trade schools be established? In National education association of the United States. Journal of proceedings and addresses, 1909. p. 606-16.
Author says that manufacturers should organize and appoint experts to study the methods that have made Germany, Japan, and other countries so successful. Industrial and industrial-art education must take the place of the system of apprenticeship which has gone or is fast going. "The governments—state and national—show more or less interest. It remains only for the manufacturers to co-operate."
746. Moving pictures as an aid to teaching trades. *Scientific American supplement*, 67, 78, January 30, 1909.
747. Murray, Michael W. The study of printing. *Manual training magazine*, 9: 329-34, April 1908.
748. Pearce, Carroll G. The city trade school—an important instrumentality for improving the vocational need of the city child. In National education association of the United States. Journal of proceedings and addresses, 1912. p. 411-16.
Commends the American type of trade school. Shows the money value of the training in a good trade school.
749. Perry, Charles F. The public trade school. In North central association of colleges and secondary schools. Proceedings, 1909. Chicago, Published by the Association, 1909. p. 89-100.
"The influence of the trade school should be used in bridging the fatal gap between fourteen and sixteen years of age."

750. ——— Trade teaching in the public schools. *In Western drawing and manual training association. Proceedings, 1909.* [Normal, Ill., °1909] p. 131-42.
Discussion: p. 143-47.
751. Probst, A. F. The school print shop and its possibilities. *Elementary school teacher*, 8: 265-70, January 1908.
752. Richards, Charles Russell. Private trade schools for boys. *Charities and The commons*, 19: 823-39, October 5, 1907.
Professor Richards divides these schools into two classes—the short-course trade school and the long-course trade school. The problem presented is the economic one of support. Describes six of the most prominent short-course trade schools of the country; their means of support, admission requirements, and results obtained by their students.
753. Sayward, William Henry. The relation of the trade school to the trade; an address . . . delivered at the graduating exercises of the North-end union plumbing school, Boston, May 15, 1908. Boston, Printed at the School of printing, North-end union, 1908. 14 p. 12°.
754. Scheer, Meyer. Industrial work. *Philippine education*, 6: 22-23, November 1909.
755. Selden, Frank Henry. Attitude of pupils in shop work. *American school board journal*, 39: 5, December 1909.
756. United States. Department of commerce and labor. Bureau of labor. Conditions of entrance to the principal trades. Washington, Government printing office, 1906. 100 p. 8°. (Bulletin no. 67, November 1906)
A study of the changes in organization and processes of modern industry. Position of the helper system in highly specialized machine industries. Treats of the decadence of the apprenticeship system.
757. Vanderlip, Frank Arthur. The urgent need of trade schools . . . [Indianapolis, Printed at Winona technical institute, 1906] 15 p. 12°.
758. Wahlstrom, Leonard W. A school print shop. *Manual training magazine*, 10: 134-47, December 1908. illus.
759. Warner, Charles F. Education for the trades in America. What can the technical high schools do for it? *In National education association of the United States. Journal of proceedings and addresses, 1901.* p. 665-73.
Discussion: p. 673-82.

XXVII. CO-OPERATIVE, APPRENTICE, AND HALF-TIME COURSES.

CO-OPERATIVE COURSE.

760. Carman, George Noble. Co-operation of school and shop in promoting industrial efficiency. *School review*, 18: 108-14, February 1910.
761. Fitchburg, Mass. School committee. Industrial training. *In its Annual report, 1908.* p. 19-28.
A co-operative industrial course introduced into the high school. A distinctively new and untried feature of high school work. The basis of the plan is the alternating of shop work and school work. The course is of four years' duration. The first year is spent wholly in school, and during the other three years the boys alternate weekly between school and shop.
See also Annual report 1909. p. 35-45.
762. Fulwider, L. A. A co-operative school and shop course. *In Illinois state teachers' association. Journal of proceedings, 1909.* Springfield, Ill., Illinois state journal, state printers, 1910. p. 179-87.
Course of study: p. 183-84.
763. Hunter, W. B. The Fitchburg plan. *In National society for the promotion of industrial education. Fourth annual convention. Proceedings.* New York City, Society for the promotion of industrial education, January 1911. p. 93-108. (*Its Bulletin* no. 13, pt. III)

764. **Pittsburg University.** Co-operative plan of engineering instruction. In *its Annual catalogue, 1910.* p. 123-25.
 "The money consideration received for this practical work will be ordinarily sufficient to meet the tuition expenses for [the student's] entire course at the University."
765. **Schneider, Herman.** Co-operative system of technical education. *Engineering magazine*, 34: 354, November 1907.
 Details plan of co-operation existing between the University of Cincinnati and the manufacturers of the city. Students obtain shop practice in the different local industrial plants.
766. ——— Growth of co-operative system. In *National metal trades association. Synopsis of proceedings of 12th annual convention, 1910.* p. 32-35.
 Describes the St. Louis plan of co-operation with factories.

APPRENTICESHIP.

767. **Albertson, Ralph.** The decay of apprenticeship and corporation schools. *Charities and The commons*, 19: 814-20, October 5, 1907.
 Shows how the modern specialization of industry has brought about a disintegration of the trades.
 "Along with this disintegration and the loss of the old system of apprenticeship training, other great industrial changes have taken place calling for skill of other kinds—for skilled foremen, superintendents, and workers in the skilled sections of the factories that have supplanted the old tradesmen, and also for skill in the new arts and trades created by recent science and invention."
 Advocates industrial education in schools rather than in factories. Article illustrated with graphic statistics.
768. **Alexander, Magnus W.** The apprenticeship system of the General electric company at West Lynn, Massachusetts. *American academy of political and social science. Annals*, 33: 141-50, January 1909.
 Describes the origin, the progress and effect of the Lynn system.
 In order to get the best results this company organized "a special department—training rooms—devoted entirely to the preliminary practical training of the apprentices. It appointed a superintendent of apprentices . . . and placed him in direct charge of the training rooms. Furthermore, it made an arrangement whereby such instructive commercial work could be transferred from the factory into the training rooms from time to time as the development of the apprentices might require." Finally, classrooms were established in the factory in which the boys might obtain mental training in the related sciences, etc.
 The author declares the apprenticeship system of the General electric company to be perhaps the best exemplification of the efficacy of this principle. Similar systems have since been organized by other manufacturing establishments, and the same scheme has been adopted by trade schools founded in recent years.
769. ——— The factory as a continuation school. In *New York state teachers' association. Proceedings, 1909.* Albany, University of the state of New York, 1910. p. 281-92 (Education department. Bulletin no. 483, November 15, 1910)
 The educational work of the General electric company, Lynn, Mass.
770. ——— Industrial training from the standpoint of the manufacturer. In *American institute of instruction. Proceedings [1906]* Boston, 1906. p. 373-88.
 The education given by the apprenticeship system of the General electric company, West Lynn, Mass., and the needs in the public schools.
771. **Bray, Reginald Arthur.** Boy labour and apprenticeship. London, Constable & co., ltd., 1911. xi, 248 p. 12°.
 List of authorities: p. 241-44.
 Deplores the conditions in England.
 "The object of this volume is altogether practical—to show what reforms are necessary to prevent the growth of the evil by laying the foundation of a new and true apprenticeship system."
772. **Cooley, Edwin G.** Pre-apprenticeship schools of London. *Vocational education*, 1: 174-83, January 1912.
 Describes the day, evening, and part-time vocational schools of London.
773. **Cross, C. W.** Practical results from a modern apprenticeship system. *Railway club of Pittsburgh. Official proceedings.* September 25, 1908. v. 7, no. 8, p. 281-86.
 Bibliography: p. 286-88.

774. **Dooley, C. B.** Solving of the skilled mechanic problem by schools furnished by manufacturers. *Pennsylvania school journal*, 59: 553-57, May 1911.
Describes the educational system of the Westinghouse electrical and manufacturing company, for its employees. During the four years' apprenticeship the training costs the boy nothing, and he receives in wages nearly \$1,000.00.
775. **Dunlop, O. Jocelyn.** English apprenticeship and child labour . . . with a supplementary section on the modern problem of juvenile labour . . . London, T. Fisher Unwin, 1912. 390 p. 8°.
Bibliography: p. 355-63.
The history of apprenticeship is traced from medieval until modern times. Contains chapters on technical training in 1550; national system of industrial training and the difficulties of its administration; the dissolution of the apprenticeship system; cost of technical education; the development of the twentieth century problems of child labor, &c.
776. **London. County council. Education committee.** The apprenticeship question. Report of the section of the Education committee . . . London, Printed for the London county council, by Jas. Truscott and son, ltd. [1906] 45 p. F°.
R. A. Bray, chairman.
Discusses situation in England, Germany, France, and the United States. Advocates the part time system and evening continuation schools as a substitute for apprenticeships.
777. **Massachusetts. Bureau of statistics of labor.** The apprenticeship system. Part I, Annual report for 1906. Boston, 1906. 86 p. 8°.
Replies to a questionnaire sent to employers and officers of trade unions in Massachusetts regarding status of apprenticeship, its regulation, condition, restriction of numbers, and value for training workmen.
778. **Scott, J. F.** Apprenticeship under the English guild system. *Elementary school teacher*, 13: 180-88, December 1912.
Describes apprenticeship during the Middle Ages and the period of the Renaissance.
779. **Stratton, G. F.** Rising industrial problems: the new apprenticeship. *Engineering magazine*, 34: 401-13, December 1907.
Indicates that the attitude of trade unions is hostile to attempts to recruit industrial workers through trade schools, but that they prefer and encourage shop training.
780. **Tirrell, Winthrop.** Summer apprenticeship in the Boston high school of commerce. *School review*, 19: 34-41, January 1911.
The scheme devised by the Boston business men's advisory committee.
781. **Warner, W. B.** The apprenticeship question of to-day. *Iron age*, 81: 1786-87, June 4, 1908.
782. **Wright, Carroll D.** The apprenticeship system in its relation to industrial education. Washington, Government printing office, 1908. 116 p. 8°.
(U. S. Bureau of education. Bulletin no. 6, 1908)
List of references: p. 87-92.
Describes certain ways in which the desired combination of schooling and apprenticeship may be effected, as exhibited by experience in a few of our leading industries.

HALF-TIME COURSE.

783. [Freeport (Ill.) half-time factory co-operative work for high schools] *American educational review*, 30: 520-21, August 1909.
784. **Higgins, Milton P.** Plan of a "half-time" school. *American society of mechanical engineers*, 21: 646-78.
One of the first papers to indicate a feasible plan whereby boys could attend school part of a day and work in a factory the remainder of the working day.
785. **Kelley, Mrs. Florence.** Part-time schools. *Child labor bulletin*, 1: 106-12, June 1912.
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787. **Stockbridge, E. P.** Half time at school and half time at work. *World's work, 21: 14265-75, April 1911.*
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XXVIII. CONTINUATION SCHOOLS.

788. **Bookwalter, Alfred G.** Continuation work—education for the industrial worker. *Charities and The commons, 19: 856-61, October 5, 1907.*
 Discusses the various types of continuation schools—correspondence; Y. M. C. A.; private, etc. See also Boston public schools. Circular of information relating to evening and continuation schools. Boston, 1912. p. 57-65.
789. **Chicago. Board of education.** Continuation schools. *In its Report, 1909. p. 86-90.*
 "The superintendent reports that in his opinion the work of the continuation schools will not be successful unless the merchants, the manufacturers, and the workmen of the city lend their assistance. Schools of this kind must be thoroughly practical." p. 87.
790. **Cincinnati. [Board of education]** Continuation schools. *In its Annual report, 1909. p. 65-68; 1910. p. 70-74. table.*
791. **Cooley, Edwin G.** The continuation school. *American school board journal 45: 11-59, August 1912.*
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792. **Dutton, Samuel Train and Snedden, David (Samuel)** Administration of evening and continuation schools. *In their The administration of public education in the United States. New York, The Macmillan company, 1908. p. 480-91.*
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793. **Hanus, Paul Henry.** Industrial continuation schools for boys and girls from fourteen to sixteen years of age. *In New York state teachers' association. Proceedings, 1906. p. 31-34.*
 Schools in Switzerland, Germany, and France. Cites the grave need for similar schools in the United States.
794. **Jones, Arthur J.** The continuation school in the United States. Washington, Government printing office, 1907. 157 p. 8°. (U. S. Bureau of education. Bulletin no. 1, 1907)
 Bibliography: p. 145-49.
 Advocates the need of such schools by statistics showing the rapid decline of school attendance after the age of industrial worth is reached. It indicates briefly how much more extensive and efficient German and English schools of this type are than our own. The work of many typical American schools is described, and finally the place and purpose of the continuation school in our system of education are defined.
795. **Kerschensteiner, Georg.** The fundamental principles of continuation schools. *In his Three lectures on vocational training . . . Published by the Commercial club of Chicago, 1911. p. 1-16.*
 Also in *School review, 19: 162-77, March 1911.*
796. **Leavitt, Frank M.** The continuation school: Cincinnati's examples. *Vocational education, 2: 218-34, January 1913.*
 A comprehensive review of the work accomplished in Cincinnati, Ohio. Author says these schools "furnish the best illustrations of this type of educational effort to be found in the country." The schools can be grouped, for purpose of study, as "evening schools," "voluntary continuation schools" and "compulsory continuation schools."

797. **Massachusetts. Commission on industrial education.** Industrial continuation schools for male commercial employees, Munich. Boston, Wright & Potter printing co., state printers, 1907. 12 p. 8°. (*Its Bulletin* no. 2)

The subjects of instruction include arithmetic, exchange, bookkeeping and accounts current, commercial correspondence and reading, commercial geography and the study of goods, life and citizenship, stenography, and penmanship. Under the head of goods, "the individual raw products and the manufactured articles are considered as regards their source, manufacture and qualities."

798. **Reber, Louis E.** Industrial and continuation schools, their foundation, organization, and adjustment to the life of the community. Madison, Published by the board, 1912. 18 p. 8°. (Wisconsin. State board of education. Bulletin no. 5)

Reviews work accomplished in other cities—Chicago, Cincinnati, and Cleveland, etc.—and emphasizes the need of industrial education.

The writer says: "In Wisconsin, as elsewhere in this country, the greatest present need is for the continuation school. . . . Wisely vocationalized public schools and well-organized continuation schools will do much toward dignifying all occupations, and thus will create contented and happy classes where discontent now frequently exists."

XXIX. CONTINUATION SCHOOLS IN FOREIGN COUNTRIES.

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799. **Balfour, Graham.** Continuation schools. In Imperial education conference. Report, 1911. London, Printed by Eyre and Spottiswoode, 1911. p. 183-95. Discussion: p. 195-201.

800. **Cooley, Edwin G.** The Scottish system of continuation schools. Vocational education, 1: 225-42, March 1912.

Shows the thoroughness with which the Scotch have undertaken the work of vocational education.

801. **Great Britain. Board of education.** Report of the Consultative committee on attendance, compulsory or otherwise, at continuation schools. London, Eyre and Spottiswoode, 1909. 2 v. 672 p. F°.

Chairman, Arthur H. D. Achland.

I. Report and appendices. II. Summaries of evidence.

Compulsory continuation schools, p. 135-86.

802. **London. County council. Education committee.** Report on eight years of technical education and continuation schools (mostly evening work) in two parts. Presented to the education committee on the 11th December, 1912. . . . London, James Truscott and son, Ltd. [1912] 120 p. F°.

Two-thirds of the children of London who leave the elementary schools enter unskilled occupations. Report says that the great weakness of the evening schools is the instability of attendance. Mr. Bray, in his memorandum on the subject, declares that nothing but compulsion will successfully cope with the 40,000 ineffectives.

803. **Sadler, Michael Ernest, ed.** Continuation schools in England and elsewhere; their place in the educational system of an industrial and commercial state. Manchester, University press, 1907. xxvi, 779 p. tab. (fold.) (Publications of the University of Manchester. Educational series, no. 1)

An important volume, in which are collected careful and competent accounts of the history and present status in Great Britain, of the various agencies for "further education," with 8 brief chapters on such schools in the chief European countries and the United States. The contributions of 18 different authors have been carefully edited by Professor Sadler (himself a considerable contributor), and the result is a veritable cyclopedia of information hitherto widely scattered or quite inexistent.

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804. **Barger, Florence E.** Continuation school work in the Grand Duchy of Baden and in Canton Zurich. London, Wyman & sons [1907?] 35 p. 8°. ([Great Britain] Board of education. Educational pamphlets, no. 6)

805. Gerner, B. Die fortbildungs und fachschulen in den größeren orten Deutschlands . . . Leipzig, A. Hahn, 1904. 458 p. 8°.
806. Great Britain. Board of education. Consultative committee. Report . . . on attendance, compulsory or otherwise, at continuation schools. Presented to Parliament by command of His Majesty. London, Printed for H. M. Stationery office, by Eyre and Spottiswoode, Ltd., 1909. 2 v. 8°. ([Parliament. Papers by command] Cd. 4757-4758)
 CONTENTS.—1. Report and appendices. (Adopted by the committee, May 7th, 1909)—2. Summaries of evidence.
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807. Hanus, Paul Henry. The technical continuation schools of Munich. Boston, School of printing, North-end union, 1906. 14 p. 16°.
808. Lautner, John E. Industrial continuation schools of Munich. Western journal of education (Ypsilanti) 3: 385-401, November 1910.
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810. Roberts, Elmer. The passing of the unskilled in Germany. Scribner's magazine, 51: 199-204, February 1912.
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811. Roman, Frederick W. Die deutschen gewerblichen und kaufmännischen fortbildungs- und fachschulen und die industriellen und kommerziellen schulen in den Vereinigten Staaten von Nord-Amerika . . . Leipzig, Duncker & Humbolt, 1910. 214 p. 8°.
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813. United States. Bureau of education. Consular reports on continuation schools in Prussia. Washington, Government printing office, 1913. 30 p. 8°. (Its Bulletin no. 9, 1913)
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823. Vickroy, W. R. Manual training as an entrance requirement. *Southern educational review*, 3: 828-34, March 1906.

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880. **Educational handwork.** Edited by George F. Johnson, Liverpool, England. Official organ of the Educational handwork association. Published by Messrs. Percy Lund Humphries & co., ltd., Bradford, England. (Monthly)
881. **Manual training.** Edited by John Arrowsmith, Halifax, N. S. Official organ National association of manual training teachers. Published at Byron House, 85 Fleet street, London, e. c., England. (Monthly)
882. **Manual training magazine.** Edited by Charles A. Bennett. Published by The manual arts press, Peoria, Ill. (Bimonthly)
883. **Revistade educacion.** Published by the Sociedad general de publicaciones, Diputacion, 211, Barcelona, Spain.
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THE GEORGIA CLUB

AT THE STATE NORMAL SCHOOL, ATHENS, GA.
FOR THE STUDY OF RURAL SOCIOLOGY

BY

E. C. BRANSON



BULLETIN OF THE BUREAU OF EDUCATION.

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LETTER OF TRANSMITTAL

DEPARTMENT OF THE INTERIOR,
BUREAU OF EDUCATION,
Washington, D. C., March 21, 1913.

SIR: In all States of the Union having a large rural population efforts are made to adjust the work of the country schools to the needs of country life. There is a widespread feeling that the schools must become a more important factor in country life than they have been and contribute more toward the solution of its problems. To this end normal schools which prepare teachers for public schools in rural communities are trying to interest their students in social and economic conditions in the country and to show them how to conduct investigations in regard to the facts of these conditions. One of the most successful attempts to do this of which this bureau has any information has been made through the Georgia Club for the Study of Rural Sociology at the State Normal School at Athens. The account of this club and its work given in the accompanying manuscript, prepared by E. C. Branson, professor of rural sociology in the State Normal School, Athens, Ga., and special collaborator in the Bureau of Education, contains many valuable suggestions for similar work in other schools and by groups of teachers and individuals in the country. I therefore recommend that it be published as a bulletin of this bureau.

Respectfully submitted.

P. P. CLAXTON,
Commissioner.

The SECRETARY OF THE INTERIOR.

THE GEORGIA CLUB AT THE STATE NORMAL SCHOOL AT ATHENS, GA., FOR THE STUDY OF RURAL SOCIOLOGY.

I. HISTORY.

ORIGIN.

Three years ago, under the leadership of the president of the school, a small group of interested people in the faculty and student body of the State Normal School at Athens began to assemble at noon on Mondays for study and discussion of Georgia. The results were full of surprises. It soon became evident that there were many things in the development of the State during the recent census period to arouse pride, but also many things to challenge serious attention and concern.

The investigations at once took the form of a sweeping economic and social survey of the State as a whole and county by county. It was found that 66 counties of Georgia were marking time or losing ground in various ways and that the social and business interests of these counties were in peril. It was also found that 80 counties were making most encouraging gains.

METHOD.

The rising tide of civic concern in the club sent its members into the census returns of 1900 and 1910, into the reports of the capitol officials, the county tax digest, the minutes of church associations, the library section on Georgia, and into every other available source of authoritative information about the State.

The county groups of students and the faculty members began to draw 10-year balance sheets for their home counties, showing in detail the gains and losses during the past census decade in (1) population, (2) agriculture, (3) industries and business, (4) wealth and taxation, (5) public roads, (6) public sanitation, (7) schools, and (8) churches.

Since 1910, 51 such county surveys have been completed. These reports have been reviewed by intelligent, alert people in the home counties and published in the county newspapers. They have contained a kind of information about the counties that had never before reached the public prints. They encouraged or alarmed the thoughtful people in these counties. Wherever it was necessary they brought about concerted action for better conditions in social and business enterprises.

In May, 1912, the trustees of the school established a chair of rural economics and sociology as a background and formal support for the efforts of the club. The new chair was established because the work the club is doing is fundamentally important, and because it calls for time and single-mindedness far beyond the opportunities its leader had as president of the school. So President E. C. Branson retired from his old position in order to give his undivided effort to this new work.

During the present year the Syllabus of Georgia Club Studies will be completed. This bulletin will make it easily possible for any other school in the State or for the schools of other States to do similar work. When the surveys are completed for all the counties of Georgia they will form a volume as useful as White's Statistics of Georgia. The new volume, however, will be based not upon description merely, but upon economic and social causes, conditions, and consequences.

THE NEW DEPARTMENT.

Courses in economics and sociology, of course, have a place in the regular weekly schedule of recitations; but the burden and value of the work lies for the most part in the permanent economics institute that has been established. This is almost entirely a new thing in the South. It is rare enough in the North and West, but it is common in the old-world countries. That is to say, the headquarters of the department are open all day long every day of the week. Here the department chief is steadily at work digging around the taproots of fundamental problems in the State, and here may come, at any time suiting their convenience, individuals or county groups of students to work out under guidance the reports upon their own counties. Here they catch the spirit and method of an academic workshop.

The county school authorities, legislators, and people of all sorts interested in public problems in Georgia also come or freely write for information, bearing in mind always that the problems of the department are economic and social. Economics just now is far more important than politics in Georgia; so the club strongly believes.

EXTENSION WORK.

A large and significant part of the work is constant correspondence with the affiliated club members in the 146 counties and with the newspapers of the State; addresses to people in the field, at school fairs, school rallies, Sunday-school assemblies, home-mission conventions, quarterly conferences, church associations, and latterly trips to other schools and colleges in Georgia and other States, organizing upon invitation Know-Your-Home-State clubs.

Already the work of the department has assumed considerable proportions. That is to say, the State Normal School is moving

toward the same direct, sympathetic, helpful relationship with the people of Georgia that the State Agricultural College has established so efficiently in the field of agriculture.

RESULTS.

Here, for instance, is an illustration of the worth and value of the new work. Sometime ago one of the superior court judges in Georgia wrote for the report upon his own county. He was so amazed and alarmed by it that he had it published at once in his home newspaper. He found that during the last census period his county had lost 17 per cent in horses, 27 per cent in hogs, 64 per cent in sheep, 23 per cent in corn, and 88 per cent in wheat acreage; that the average yield of corn per acre was only 12 bushels, a loss of 17 per cent in 10 years; that his county had suffered a decrease of 25 per cent in the number of farms cultivated by owners; and that the number of illiterate white children in the county was 729, an increase of 47 per cent in 5 years.

He has since been stirring up the people in his end of the State upon matters of economic and social import. The counties in his district are being organized into Helpers' Associations, their purpose being to stir into activity the preachers and church authorities, the teachers and school authorities, the physicians and business men. A club member in one of these counties writes: "We are already moving toward a county-wide, local-tax school system."

The club members here will be teachers, but few of them will be teachers merely. They will be leaders as well in every kind of progressive community enterprise. The mere teacher ought to go out of existence. The State does not need teachers merely, but teachers who are citizens and patriots as well. The club develops leadership as well as teachership.

The State Normal School is building upon a knowledge of bedrock conditions in Georgia, and is directing its efforts toward larger usefulness accordingly. And this effort is exactly up to date. For long years educators exploited psychology as the one fundamental thing in the science of teaching; and it is, as far as methods are concerned. Then they discovered that economics and sociology are fundamental; and so they are, the content and ideal aims of education considered.

Latterly we have talked learnedly about the school as a social center, only to discover that teachers as a professional class knew nearly nothing about economics or sociology, either as an academic subject or in direct, first-hand ways. The very aloofness of teachers from business, from community life, affairs, and events is in itself a serious disqualification.

The Georgia Club believes that he is a poor teacher who is not also a large and leading influence in the life of his community.

PUBLICATIONS.

So far the publications have been "A Fifty-Year Survey of Southern Agriculture"; "Farm-Life Conditions in the South"; "Brief Economic and Social Surveys of Clarke, Putnam, Fulton, and Bibb Counties"; "Our Country Life Problem"; "Country-Life Defenses"; "Denmark's Remedies: Education and Cooperation"; "Small-Farm Ownership"; "The Church as a Country-Life Defense"; "The Rights of the Child"; "The Geography of Georgia Soils (Merrill)"; "The Country School of Permanent Influence"; and "The Georgia Club Syllabus: Section I, on Population."

The following bulletins are in course of preparation: "The Physician as a Country-Life Defense"; "Good Roads as a Country-Life Defense"; and the "Debt and Duty of the Cities to the Country."

II. THE HOME STATE A PROPER CURRICULUM STUDY.

The Georgia Club may be said to have stumbled into the discovery that the home State and the home county are proper subjects of school study; that exact information about one's own community and people arouses sympathetic concern and civic conscience, and therefore furnishes a definite and sure foundation for social service and efficient citizenship.

The club members knew something about the geography and history of Georgia—not very much. We knew more about lands and peoples farther away in time and space. We knew little accurately about the civic and social institutions of the home county and Georgia; but we quickly realized that we knew almost nothing about economic and social conditions, causes, consequences, drifts, and tendencies; about the forces that so largely in the past have made the history we now study and that are so largely determining the history our children will study in the future.

Many of us knew about the Vale of Tempe, but few of us knew about our own Nacoochee Valley, its loveliness and its resources of soil and civilization. Some of us even knew on which side of the Hellespont Sestos was, but few of us knew on which side our bread was buttered. We knew a great deal, we thought, about methods of teaching elementary school subjects, but we knew little about our sources of wealth and their conversion into common wealth in Georgia.

Ruskin found it hard to forgive Oxford for teaching him Latin and Greek and about the twinkling stars in distant spaces but forgetting to teach him that fritillaries grew in Iffley meadows. We began to realize that our own Tallulah River, with its wealth of power and beauty, is just as important to us as a knowledge of the Ilyssus River. We think we ought not to miss the martial fever and fervor of Homer's Iliad, but also we have come to think that Lanier's Hills of Habersham and Valleys of Hall and Marshes of Glynn are priceless

spiritual treasures that we dare not neglect. The honey of Hymettus is far less important to us than the wonderful revival of bee farming in a near-by county where a native Georgia cracker is earning \$5,000 a year.

And so the Georgia Club speedily settled down into a faithful study of the near, the here, and the now, the significance of the community occupations and businesses, the forces and agencies that are offering obstacles or creating opportunities in the field of social service to which as teachers we are consecrating ourselves.

We soon learned that we had set ourselves to a great task; that our little home communities are an epitome of the human life forces and agencies of the whole earth; that our laboratory is the men and affairs, the impulses and events of our own workaday world; that we are steeped in source materials to our very throatlatches every minute of every day; and that the pulse beat of the social organism is as real as the beat of our own hearts.

A club member told of finding a teacher in Bartow County calling upon the children to recite the meager information in a geography book about the Mesaba ore fields in Minnesota. "I looked about the schoolroom," said he, "for the red and brown iron ores with which the entire county is underlaid. Not a specimen was in sight, and not a single detail of information about the iron-ore resources of the county was to be had from either the teacher or the pupils."

Meanwhile aliens and strangers have bought up these ore fields in Bartow and throughout northwest Georgia. The properties are not being developed. The owners have simply meant to secure and hold these sources of raw materials.

In the same way the people of Georgia have parted with their water powers. As a rule, the owners of these properties in this and other States have known almost nothing about their value, and the people generally have known nothing at all.

The Georgia Club believes that students and teachers in a public institution ought to know about the water powers, the forest and mineral wealth, and all other natural resources of the home State. Why not? We know much about irrigation in the West, but little about the wet lands and the drainage problems and possibilities of the South. The club follows Milton, who said:

Prime wisdom is not to know
At large of things remote,
But that which daily lies about us.

OUR NEGLECT OF ECONOMICS AND SOCIOLOGY.

Everywhere, of course, we have strong departments of Latin, Greek, French, German, mathematics, history, and other traditional academic subjects. We have wonderfully developed our schools of

agriculture and technology; but nowhere in the South are there well-developed, strong departments in economics and sociology; that is to say, economics and sociology growing directly out of the life conditions and problems of the South and directly and efficiently related to its welfare and well-being.

Eighty-five per cent of the people of the South still live in the country, but nowhere have we yet a department of rural economics, not even in our agricultural colleges. President H. J. Waters, of the Kansas State Agricultural College, states that instruction in production in American agricultural colleges is very much superior to that in utilization. We have not developed a strong course in rural economics, and, barring a few institutions, comparatively little effort is making along this line as yet.

A COLLEGE CHAIR DEVOTED TO THE HOME STATE.

In truth, why should not a State institution maintain a chair devoted to the home State, its history, its geography, physiography, and climatology, its soils and their adaptation, and other natural sources of wealth, their location, nature, and value, along with the economic and social causes of development and decay?

The Bureau of Soils in the United States Department of Agriculture sends us an account of Glynn County. Seventeen such soil surveys of Georgia counties have been finished and published. The State geological department is issuing a valuable series of reports upon our deposits of coal, iron, marbles, clays, granites, and gold; upon our water powers, and our progress in road building. The State department of agriculture has just issued a report upon fertilizers, fertilizer manufactories, cotton-seed-oil mills, etc.

And so from the State and the Federal departments comes a steady stream of bulletins conveying valuable information. They are widely distributed. If they were adequately valued and faithfully studied, the general public could not fail to receive an enormous benefit. As it is, they largely go to waste through sheer neglect. Eight thousand young people in the colleges and universities of Georgia hear of them only in rare instances. No department anywhere assembles these treasures of information for the purpose of teaching a student body about the mother State.

The Georgia Club believes that an institution supported by the State ought thoroughly to know the Commonwealth that gives it life; that it ought to adjust its work to the needs of the State, acquaint its students with the resources and possibilities of the State, and breed in them the wisdom, the willingness, and the skill that the Commonwealth has a right to expect from her sons and daughters. How can a school adjust itself to the life that is and ought to be in a State without knowing intimately and thoroughly the problems of

the State; and what problems are better worth attacking directly and completely? The modern trend in the development of State institutions is toward their functioning with special reference to the States they serve. They bring to this task the funded wisdom of the race in all departments of learning and endeavor. It is their duty to do so. They are set up and maintained for this special purpose. It is a debt that they owe the Commonwealths that give them life.

The University of Wisconsin, at Madison, is realizing this ideal. The Babcock fat test, the Hart casein test, and the Wisconsin curd test have added an additional \$3,000,000 to the dairy product of the State every year for the past 25 years. And in the same way the university is directly and efficiently related to other departments of economic, social, and civil life in Wisconsin.

THE FINAL TEST OF WORTH.

The final justification of public taxation for public education lies in the training of young people for citizenship. If a public institution is not doing this, it has no reason for existence, at least no claim upon the public purse. Quite naturally, public institutions of learning have long believed that the liberalizing effect of general courses yielding discipline and culture is efficient training for citizenship. But young men go through these institutions, take their various degrees, adopt their vocations and professions in life, as a rule, with large emphasis upon private income and meager emphasis upon the public good. Occasionally, they grow into a genuine and generous concern for community well-being and welfare; and in these rare instances they tower like great oaks in a copsewood. The pity of it lies in the rarity of these instances.

NOT AN INVENTION, BUT A DISCOVERY.

Training for citizenship in direct, efficient ways has always been to school authorities a puzzling problem. The study of history, civics, and kindred subjects has seemed quite to the point; but everything goes amiss and awry without a stirring of civic conscience and concern.

The Georgia Club is face to face with an unmistakable conclusion, namely, that intimate, accurate knowledge of one's own home county and home State probes the quick and core of interest and concern. It is an ever-present subject, with an ever-growing fascination and appeal. Fingering the facts and the causes indicative of increasing stagnation and social decline in a county (and there are 28 such counties in Georgia) makes of our young people not teachers merely, but citizens and patriots as well.

In Georgia, as in other States, some townships or districts within the county lines are moving rapidly forward, while others are mark-

ing time or retreating into stagnation and decay. Eighty counties of Georgia are clearly making gains in most directions. Forty-one counties have been drowsing along these 10 years or more, in a half-awake, half-asleep condition. Twenty-five counties have long been losing in population, and lagging in the rear in the creation and accumulation of wealth. Meanwhile, year by year, the wealth of these counties has been more and more concentrated in the hands of fewer and fewer people. Each decade discloses an increased number of landless, homeless people in them. Their country schools and country churches are steadily dwindling in power and influence.

Of course, the students from these various counties are stirred to the very quick when they begin to realize the status of their home communities. Face to face with the obstacles and opportunities, they gird up their loins for lofty service and great achievements.

This leads me to say that the study of facts and forces within a small, well-defined, familiar area like the home county, is a sort of kindergarten approach to the formal study of economics and sociology in our universities. Indeed, it is a logical beginning. Many of these students from the country know their home counties perfectly. They know their counties far better than students from our cities know the localities and communities, the life and enterprises, of their home towns. Quite naturally, what they know of surrounding life, its problems and forces, is vague and superficial, and without appeal to interest or action; but when they come to draw a balance sheet for their counties and to show the gains and losses over a ten-year period, when they compare and rank their own counties with the other counties of the State, they begin to ask with great concern, Why is my county gaining or losing in home ownership, or in crop averages, or in church and school advantages, or in illiteracy and crime? Why is the rank of my county first, or fortieth, or one hundred and fortieth in this or that item of comparison?

These inquiries at once bring them into the consideration of a wide range of economic and social causes and forces. As a rule, they discuss these causes immaturely, clumsily, and crudely. Their sense of causation, sequence, and consequence is feeble, as it is in most young students, and, indeed, in most people at any age. It is perhaps the first stirring in them of a rare and mighty power. It is the sense of social constructive imagination. It is the sense of social prophecy. It is training in inductive thinking about the well-known matters of a home community. It is looking at the houses, the farms, the business enterprises, the schools and churches that are, and seeing the houses, the farms, the business enterprises, the schools and churches that may be. And it is a dynamic, stirring sort of school experience even for the clumsiest intellect.

III. ECONOMICS AND SOCIOLOGY IN NORMAL SCHOOL CURRICULUMS.

Early in the history of teacher-training schools, academic and professional subjects were the staple of instruction. A little later were added model schools, with practice teaching by initiates under the guidance of superiors; and still later, courses in the manual arts, domestic arts and science, and elementary agriculture. For a long while the informing theory of teacher-training schools was found in psychology, this theory changing as psychology developed its special fields of investigation and conclusion.

At last it dawned upon us that psychology alone was an insufficient basis for a philosophy of education; that the content of studies and the ideal ends of education were related to economics and sociology as well. And so these subjects have slowly begun to gain a footing in the curriculums of the 200 public normal schools of the United States.

But what is needed seems to be not formal, insulated, textbook courses in economics and sociology; not mere acquaintance with the kaleidoscopic changes of view and theory that mark the history of these subjects from Auguste Comte to Henry George; not mere enrichment and discipline of mind in these fields of learning; but direct, first-hand, sympathetic experience with the workaday world of men; the dyeing of our hands, the steeping of our minds in the affairs of community life, business, civic, social, and religious.

To be sure, under competent, wise guidance an immature student in economics and sociology in our colleges and universities may get a sane and safe background of thinking, and it will help him into safe conclusions about the problems of his home community and State. Indeed, such a background of theories is indispensable.

THE VIEW AND METHOD OF THE GEORGIA CLUB.

But the Georgia Club works not out of, but into, these great subjects; by handling, for instance, a problem like this:

The total aggregate wealth on the tax digest of my county in 1910 was \$1,417,000. Our 1910 cotton crop brought into the county \$1,255,000, and turned it loose among the farmers, the merchants, the butchers, the bakers, and candlestick-makers. That is to say, a single cotton crop yielded almost as much money in one year as the total wealth of the whole county, accumulated during the 111 years of its existence.

Other members of the club doing similar figuring upon their own counties report that two or three cotton crops yield money sufficient to buy out every form of property, every business, everything, and everybody in the whole county.

The students then begin at once to hunt down answers to such questions as these: What becomes of all this cotton money from year to year? Who gets it? Why does so little of it remain in the

county when the year's balance sheet is struck? What condition of things promptly dissipates this wealth to the ends of the earth and leaves so little behind? Who gets the larger share of the meager remainder; the farmers, the tenants, the landlords, the merchants, or the bankers? Why?

Seventy-seven per cent of the farms of this county are cultivated by tenants; what has farm tenancy to do with the slow gain of total wealth in the county? Have the tenants prospered? If so, why do they not rise out of tenancy into farm ownership? Why are there fewer farms from year to year cultivated by owners? Are the tenants as a class industrious, thrifty, and aspiring? If not, why not?

What are the effects of widespread and increasing farm tenancy upon farm lands and crops, upon all forms of farm property whatsoever, upon country schools and country churches, upon the good roads movement, upon local tax for schools, upon churches and church life and influence, upon cooperative credit associations, upon cooperative buying and selling, upon home-raised feed and food supplies?

These and other inquiries they begin to make and answer, of course, in immature, clumsy ways. How could it be otherwise? It is a new kind of thinking, along new lines, in a new field. True, these facts and forces have all their lives long been as close to them as their very skins, and like their skins have challenged consciousness just as little. And yet here are conditions and agencies that are writing the future of their home counties in terms large or small.

When the club has wrestled with these problems in a series of meetings they are more or less ready to consider the fundamental significance of home and farm ownership; to understand why fewer and fewer people own homes and farms in densely populated, prosperous communities; to see why the county with a large number of small landowners who live on and cultivate their own farms forges ahead more rapidly than the county with a small number of large landowners who for the most part rent the farms they own; and to realize why cooperative farm enterprises, buying, selling, credit societies, and the like, are so easily possible in the first county and so nearly impossible in the second county.

They study and discuss the economic situation that explains the marvelous multiplicity and prosperity of small country banks; that is to say, banks privately owned that grow rich upon the business of farm communities. They are led by a consideration of facts and forces of the home community into a study of the sources of wealth, the production, exchange, and distribution of wealth; the relation of wealth to community welfare, and the conversion of wealth into commonwealth.

If the school is to be related to surrounding life and efficiently react upon it, these problems and many others must be solved with

understanding and vision. If the school is to become the center of occupational and recreational life in the community, then it at once appears that teachers must know intimately and intelligently the problems that the school must help to solve by proper adjustment. And teachers must think about these problems sanely and sensibly, with all the help that can possibly come to them out of the accumulated wisdom of the race in economics and sociology.

THE IDEAL OF THE GEORGIA CLUB.

The Georgia Club holds as an ideal the teacher who reads and thinks, observes and serves his community far beyond the walls of his schoolroom; who claims and exercises part and lot in the life of his community as a citizen as well as a teacher; who owns his own home, drives his tent pegs down deep, and shares in the task of community upkeep and upbuilding. The Georgia Club thinks that his profession ought not to disqualify him for knowing intelligently and thinking sympathetically, keenly, and wisely upon the problems of community life.

Holding these ideals, the work of the club during the past three years convinced the trustees of the school that the purposes, methods, and studies of the club were a discipline in citizenship; and that a chair of economics and sociology, growing out of and related to the problems of Georgia, was a profitable preparation for leadership as well as for teachership.

IV. THE CREED OF THE GEORGIA CLUB.

First. We believe that education is a reciprocal union with society.

Second. We believe that social conditions determine all efficient school functioning.

Third. We believe that the output of the Georgia State Normal School should be teachers who are aflame with rational ideals and purposes, but are also steeped in realities.

Fourth. We believe that the teachers of this faculty should be intimately acquainted with the indoor concerns of their departments, intimately acquainted with the best that the great world is thinking and doing in their departments; but also that they should be accurately schooled in outdoor economic and social conditions, causes, and consequences in Georgia, in direct, first-hand ways.

Fifth. We believe that the school is one of the mightiest agencies of social uplift, and that no teacher can help to make this school such an agency unless he is directly and vitally related to the human-life problems of the community and the State.

Sixth. We believe that a teacher has a right to be a citizen and a patriot; that to be less than either or both is to be a "mere teacher";

and that a mere teacher is to be less than a full-statured man or woman.

Seventh. We believe that this school has betrayed the high calling whereunto the State has called it if its graduates do not set their hands to their tasks as citizens and patriots, as lovers of their kind and their country, with keen realization of home conditions and needs, with sympathy and concern, with growing love for community and county, State and country, and with high resolve to glorify common tasks, common duties, and common relationships in faithful devotion.

Eighth. We believe that in the measure in which we shall satisfy these ideals will we all love the school more, our home counties more, our State and country more, and serve them better, both now and in all the years to come.

V. WHAT STUDYING GEORGIA MEANS TO THE GEORGIA CLUB.

The club relies confidently upon the departments of history, civics, geography, and agriculture for instruction about Georgia in these subjects; and so the effort of the club has been concentrated upon economic and social conditions, causes, consequences, and remedies. These studies have concerned (1) the State at large in comparison with every other State in the Union, and (2) every county of the State in comparison with itself during the last census period, and (3) in comparison with every other county of the State. The rank of the State and the rank of each county are figured out in every detail of the study.

The topics in general have been: (1) Population—urban and rural, white and black; causes and effects of increase or decrease; (2) agriculture—farm ownership and tenancy, causes and consequences; crop acreages and per acre yields; increases and decreases; causes of the same; domestic animals—increases and decreases, causes and effects; home-raised food and feed supplies—surplus, deficiency, and effects of the same; (3) manufacture—forms, increases in capital, wages, and total products; mill-village problems; child labor and compulsory education; (4) wealth and taxation—natural resources of the State, the factors in production; studies in the county tax digests showing forms of wealth, increases and decreases by races; tax values of land compared with census values, exhibiting the inequalities of taxation for State purposes; per capita wealth, by races; the system of taxation in vogue in Georgia, compared with other States; (5) improved public highways—progress in the counties of the State, kind and cost of improved roadways, values; (6) cooperative enterprise—in buying, selling, and banking; city markets; (7) sanitation—State board of health, functions, support, efficiency, and values, compared with other States; preventable

diseases; county health boards and sanitary officers, value of the same; medical inspection of schools, results and progress in other States and sections; (8) schools—local taxation in Georgia and other States, local tax systems within the State; redirected country schools; school fairs; efficient school supervision; counties ranked according to (a) per cent of average attendance, (b) per cent of pupils reaching the high school, (c) total amount invested in school property, (d) total amount invested in school equipments, (e) average salaries paid, (f) average cost of schooling a child per month, (g) per cent of illiteracy (these figures for each race); (9) the country church—its status, its usefulness in the past, present menaces and perils, necessity for new ideals and redirected effort, model country churches; religious status of the negro; country church surveys by county ministerial associations; and so on.

VI. GENERAL STATE PROBLEMS—TABLES AND MAPS.

From time to time club members have volunteered to work out the following general problems of the State, in the office headquarters at odd times, as the chances of a crowded schedule permitted:¹

1. Counties of Georgia ranked according to density of population, 1910.

2. Counties ranked according to increase or decrease of population during the last census period.

3. Counties ranked according to the per cent of negro population.

4. Counties ranked according to the gains and losses of negro population.

(The results in each case being graphically represented upon skeleton maps of the State.)

5. Map showing the group of counties with negro majorities.

6. A table showing in percentages, by counties, the increase of white population side by side with the increase of white farmers; and the increase of negro population alongside the increase of negro farmers.

7. A table showing the decreasing ratio of negro population in the cities of Georgia.

8. A table ranking the counties according to the proportion of farms cultivated by tenants and by owners.

9. A table showing negro landownership by counties: (a) Total acres owned in 1910, (b) per cent of the total farm area, and (c) per cent of gain since 1900.

10. Counties ranked according to ratio of cash or standing rent to share tenants, (a) whites, (b) negroes.

¹ The first seven of these tables and maps appear in the "Georgia Club Syllabus, Section 1: on Population." The others will appear in the final sections of the club syllabus.

11. Tables ranking the counties of Georgia according to (a) per cent of freedom from farm indebtedness, (b) white farm owners, and (c) negro farm owners.

12. Counties ranked according to tax value of farm lands per acre when compared with the census values.

13. Cities of Georgia ranked according to (a) total value of manufactured products, (b) capital invested, and (c) number of operatives employed.

14. Counties ranked according to per capita wealth, by races.

15. Table showing total taxes paid into the State treasury by each county and the total of pension and school money received by each county from the State treasury, with excess or deficit for each (1910).

16. Counties ranked according to percentages of increase or decrease of (a) cattle, (b) work animals (horses and mules), (c) hogs, and (d) poultry. (Tables cover last census period.)

17. Counties ranked according to the average number of work animals per farm. Similar table for Georgia and the other States.

18. Counties ranked according to the investment in farm machinery per acre. Similar table for Georgia and the other States.

19. Cotton tables ranking the counties according to (a) per cent of improved land in cotton, (b) per cent of increase or decrease in acreage since 1900, and (c) in average yields per acre.

20. Similar tables for corn.

21. Tables showing by counties the home-raised meat supply (cattle, hogs, and poultry) per year.

22. Tables showing by counties (a) total annual expenditure upon roads and bridges, (b) total invested in road machinery, and (c) miles of road built (year 1911).

23. Tables ranking counties according to (a) per cent of average attendance upon school population, (b) per cent loss of pupils between the first and seventh grades, (c) per cent of pupils reaching the high-school grades, (d) cost of schooling a pupil per month, each race, (e) total amount invested in common-school property, (f) total amount invested in school equipment, and (g) per cent of illiteracy among children of school age (separate tables for each race).

24. Counties ranked according to per cent of church members (census of religious bodies, 1906).

The student groups, as they pursue their county studies through the various details, come to these general tables on file for ready reference in the office to see just where their county stands in these various particulars. First of all, a group has been comparing the home county with itself during the last census period. Now, by the help of these tables, they compare their county with every other county in the State in various details of study.

VII. SKELETON OUTLINE OF COUNTY STUDIES.

While volunteers from the club have been working out general problems, covering the State at large, as already indicated, and listing, ranking, mapping, and otherwise graphically representing the results, individuals or county groups have been assembling from every available source of authoritative information the facts about their own home counties and comparing the county with itself over a 10-year period, the last census decade.

These county studies have occupied their spare moments sometimes for two or three months, in some instances for a year or more. They have been in correspondence with the courthouse officials, with the ministers, physicians, or other well-informed people at home (who are usually affiliated members of the club). Students often spend their holidays searching courthouse records and otherwise investigating, checking, correcting, and perfecting their county reports—on the ground, in person.

They have been guided in their studies by the outline that follows. These outlines are used merely to assemble the facts comparatively. When these facts have been thoroughly reviewed and revised with the help of the affiliated club members at home, then these bare, bald figures are translated into simple running narratives for the county newspapers at home. In this way these reports reach a reading public that as a rule rarely sees any census news and never any census details concerning the home county.

As a rule the affiliated member at home is both willing and proud to assume the paternity of the county report when it is ready for the home paper. In this way the narrative has a greatly increased value and effect, while the club escapes the suspicion of impertinent obtrusion.

STATE NORMAL SCHOOL, ATHENS, GA.

ECONOMIC AND SOCIAL SURVEY OF COUNTY.

By

1. *Location and surface:* (1) Soils, climate, adaptation; (2) other natural resources; (3) great men, great events.
2. *Population:*
 1910, white,; black,; total,;
 1900, white,; black,; total,;
 Gain or loss (per cent),
- 3 *City population,* figured in the same way whenever there are towns or cities in the county. Is the city gaining mainly in white or black population? Are the country regions of the county gaining or losing in white population; in negro population? (Figure on the reverse side of the sheet and summarize the results below.)
 Brief account of the chief city, if large or growing.

4. *Area*: acres; under cultivation, acres. Per cent of total area under cultivation, Number of farms,; per cent of increase since 1900, Number of white farmers, Number of negro farmers, Average size of farms,; of improved farms, Brief account of room for homeseekers; drainage areas; water powers, etc.
5. *Ownership and tenancy*:
- (1) Farms tilled by owners:
- 1910, white,; black,; total,
 1900, white,; black,; total,
 Gain or loss (per cent),
- (2) Farms tilled by tenants:
- 1910, white,; black,; total,
 1900, white,; black,; total,
 Gain or loss (per cent),
- (3) Per cent of farms tilled by tenants, both races:
- 1910, By owners,
 1900, By owners,
- (4) Rank in farm tenancy in 1910, Ratio of standing-rent to share-tenants,
- (5) Effects of tenancy upon farm properties, soils, schools, churches?
6. *Farm indebtedness*: Farms tilled by owners—white, free, per cent; negro, free, per cent.
- (1) Average for the county, per cent; for the State, per cent.
 (2) Rank in freedom from farm indebtedness:
7. *Wealth*:
- (1) Value of all farm property (census, 1910),
 Total aggregate wealth (county tax digest),
 Compare these. Conclusions:
- (2) Total value of land (census),; average value per acre (census),
 Total value (county tax digest),; average value (county tax digest),
 Compare these. Conclusions:
- (3) Investigation: Are farm properties paying relatively more or less than their equitable share of taxes?
- (4) Manufactures: Number of establishments,; kinds,
 Total invested,; increased per cent, since 1900,
- (5) Banks: State and private, number,; national, number,; total bank capital,; increased per cent,
- (6) Total number of farm landowners who do not cultivate, but rent their lands to tenants,; total acreage so owned,
 Per cent of the acreage of the county, per cent.
 (Get this information from the county tax digest.)
 To the number of owners who only rent the farms they own, add the number of owners who cultivate the land they own (see census, 1910), and figure the number of landless people in the county. How many are white?
- (7) Negro property ownership:
- | | 1900 | 1910 | Increased per cent. |
|---------------------------------|-------|-------|---------------------|
| (a) Number of acres owned | | | |
| (b) Total aggregate wealth..... | | | |
| (c) Per capita wealth..... | | | |
| (d) Conclusions: | | | |

8. *Cooperative enterprise*: (1) Buying; (2) selling; (3) banking; (4) medical; associations; (5) ministerial associations; (6) women's clubs. Brief account of each: (1) purposes; (2) achievements.

9. *Domestic animals on farms and ranges*:

(1) Cattle:

1910,

1900,

Gain or loss (per cent),

Note increase or decrease of dairy cows since 1900.

(2) Horses:

1910,

1900,

Gain or loss (per cent),

Note increase or decrease of colts.

(3) Mules:

1910,

1900,

Gain or loss (per cent),

Note increase or decrease of colts.

(4) Sheep:

1910,

1900,

Gain or loss (per cent),

Why? State on reverse side of this sheet.

(5) Hogs:

1910,

1900,

Gain or loss (per cent),

Why? (Idem.)

(6) Poultry:

1910,

1900,

Gain or loss (per cent),

Why? (Idem.)

(7) Bee swarms:

1910,

1900,

Gain or loss (per cent),

Why? (Idem.)

(8) Dogs:

1910,

1900,

Gain or loss (per cent),

Debate: Should there be a dog-license tax in Georgia? A dog-muzzle tax law?

10. *Crops*:

(1) Cotton:

1910, acres,; total bales,; average per acre yield,

1900, acres,; total bales,; average per acre yield,

Gain or loss (per cent),

(a) Per cent of improved land in cotton?

(b) How many counties had a smaller per cent of the cultivated area in cotton?

(c) How many counties had a larger yield per acre?

Why?

10. *Crops—Continued.*(2) *Corn:*

1910, acres,; yield, total bushels,; average yield,

1900, acres,; total yield, bushels,; average yield,

Gain or loss (per cent),

(a) Per cent improved land in corn?

(b) How many counties had a smaller per cent of the cultivated area in corn?

(c) How many counties had a larger yield per acre?..... Why?

(3) *Oats:*

1910, acres,; total yield, bu.; average yield,

1900, acres,; total yield, bu.; average yield,

Gain or loss (per cent),

(4) *Wheat:*

1910, acres,; total yield, bu.; average yield,

1900, acres,; total yield, bu.; average yield,

Gain or loss (per cent),

(5) *Sweet potatoes and yams:*

1910, acres,; total yield, bu.; average yield,

NOTE.—No census report in 1900 upon sweet potatoes by counties.

(6) *Hay and forage:*

1910, acres,; total yield, tons; average yield,

(a) Are there more and better pastures in the county year by year?

(b) Why or why not?

11. *Home-raised food supply per person per year:*

(1) Meat: Divide total cattle, total hogs, and total poultry by the population of the county and tabulate results below:

(a) Is it sufficient?

(b) Get from the merchants the facts about the annual shipment of meat into the county.

(c) Deficiency.

(d) Cost of the same.

(2) *Small grain:*

(a) Total bushels raised (corn, wheat, and oats),

(b) Total needed for population and work animals (horses and mules). (Count 6 bushels per person per year and 50 bushels per work animal per year.)

(c) Deficit or excess,

(d) Cost or value of the same.

(3) Amount of money put into circulation in the county by the cotton crop reported in the 1910 census (multiply number of bales by \$65 each),

(4) Total aggregate wealth of the county on the 1910 tax digest,

(5) How many such cotton crops equal the accumulated wealth of the county since the beginning of its history?

(6) Where goes this vast cotton wealth year by year?

(7) Conclusions:

12. *Marketing facilities:* (1) Railway outlets; (2) city markets—advantages to the country, to the city.13. *Improved public roads:*

(1) How many miles of public roads in the county?

(2) Miles of improved public roads built to date?

(3) Amount invested in roads machinery?

13. *Improved public roads*—Continued.

- (4) Amount spent upon roads and bridges in 1911?
- (5) Does your county consume its roads money in patching roads?
Why?
- (6) Compare the county in all these particulars with other counties.
- (7) See Home's Good Roads Bulletin, University of South Carolina.

14. *Public health:*

- (1) Common diseases in the county?
- (2) Are they preventable? How?
- (3) Death rate: Whites? Blacks?
- (4) Results of the hookworm investigation? Treatment?
- (5) Is the boll weevil in your county? If so, state fully what the effects are.
- (6) What has been done toward cattle tick eradication?
- (7) Has your county a health board and health officer? If not, why not?
- (8) Is there any medical inspection of children? Results?

15. *Schools:* (Consult latest State school superintendent's report.)

(1)

(1) Schools, white....	.....	Schools, negro.....	.....
(2) White school population.....	.....	Negro school population.....	.....
(3) White pupils enrolled.....	.....	Negro pupils enrolled.....	.....
(4) Per cent of enrollment upon school population.....	.....	Per cent of enrollment upon school population.....	.....
(5) White average attendance.....	.....	Negro average attendance.....	.....
(6) Per cent of average attendance upon school population.....	.....	Per cent of attendance upon school population.....	.....
(7) How many counties show a larger per cent of attendance?.....	.....	How many counties show a larger per cent of attendance?.....	.....

(2)

(1) White pupils, first grades.....	.....	Negro pupils in first grades....	.....
White pupils, seventh grades.....	.....	Negro pupils in seventh grades.	.....
Loss.....	.....	Loss.....	.....
Loss per cent.....	.....	Loss per cent.....	.....
(2) How many counties lose a larger per cent of pupils between the first and last grades?.....	.....	How many counties lose a larger per cent of pupils between the first and the last grades?.....	.....

15. *Schools*—Continued.

(3)

(1) How many white high school pupils in the county?.....	.....	How many negro pupils in high schools?.....	.....
(2) Per cent of white school population?.....	.....	Per cent of negro school population.....	.....
(3) Rank of the county in this particular?.....	.....	Rank of the county in this particular.....	.....

(4)

(1) Cost of schooling a white pupil per month?.....	.....	Cost of schooling a negro pupil per month.....	.....
(2) How many counties spend more for schooling a white pupil per month?.....	.....	How many counties spend more for schooling a negro pupil per month?.....	.....

(5)

(1) Total fund for common public schools?.....	.....
(2) Amount raised by local taxation and all other sources?.....	.....
(3) Per cent of the total fund derived from the State treasury?.....	.....
(4) How many counties derive a smaller per cent from the State treasury?.....	.....

(6)

(1) Total amount invested in common school property?.....	.....
(2) Total amount invested in the county in automobiles?.....	.....
(3) Comparison..... Conclusions:.....	.....
(4) How many counties have a larger amount invested in common school property?.....	.....

(7)

(1) How many schools have school libraries?.....	.....
(2) How many schools have corn clubs?..... Garden clubs?.....	.....
Canning clubs?.....	.....

16. *Illiteracy* (see new Georgia bulletin soon to issue from the Census Bureau).

(1) White, 1910,; negro,; total,

White, 1900,; negro,; total,

Decrease, per cent,;

Decrease, per cent,;

(2) How many counties show a smaller per cent of white illiteracy?

17. *Churches* (consult minutes of the church associations and investigate personally on the grounds).

A few of the significant facts to be assembled, for each race, are as follows: (1) The number of strictly rural churches,; (2) the number in towns and villages,; (3) the number in cities,; (4) the total membership,; (5) the per cent of the same of the total population,; (6) the number of rural churches with

homes alongside them for the ministers,; (7) number having preaching once a month,; twice a month,; (8) the number of Sunday schools,; (9) the number of churches that have dwindled in membership and influence during the last 10 years,; (10) the number that have been standing still,; (11) the number that have been abandoned,; (12) the number that are served by nonresident ministers (coming from a distance each month),

Note: Set the ministerial associations of the county to work to collect these facts. The preachers ought to know these and many more such definite facts about the home field.

18. *Suggested agencies* and plans for community uplift.

19. *Study*: "The Challenge of the Country," Fiske, the Association Press, New York. Strong's "The Challenge of the City," Eaton & Mains. Kern's "Among the Country Schools," Ginn & Co. Foght's "American Rural Schools," Macmillan Co.

20. *Sources of information* in this report: The 1900 and the 1910 Census Reports; the reports of the capitol officials; the county tax digests. (Add such others as may be used.)

VIII. A SPECIMEN COUNTY NARRATIVE.

A BRIEF ECONOMIC AND SOCIAL SURVEY OF HENRY COUNTY, GA.

For the Georgia Club; by Miss Mary M. Woods.

(Sources of information: The census reports; the reports of the statehouse officials; the county tax digests; "Georgia: Historical and Industrial;" White's Statistics of Georgia; and every other available source of authoritative information.)

LOCATION AND SURFACE.

Henry County, created in 1821, is located a little west of the center of the Piedmont uplands. Like other counties in this section of the State, it is an undulating, hilly country, broken and well watered by abundant streams; by the South River, a branch of the Ocmulgee, by Cotton River, and by numerous creeks. The lands along these streams are rich and fertile. Elsewhere the soils are light and sandy; in some places they are "mulatto" and red-clay soils. Soils, climate, and railway connections make diversified farming possible and profitable.

In the watercourses are many fine shoals, offering valuable water powers. In 1900 there were several small country mills for corn and wheat; among them a good roller mill at Island Shoals. These have not died out during the census period, as in so many other counties.

POPULATION.

In 1910 the population of the county was 19,927, a gain of 1,325 people, or 7.1 per cent during the last census period. (Between 1890 and 1900, it was 14.7 per cent.) Sixty-eight counties in Georgia grew at a greater rate during the past 10 years. The increase consisted of 530 white people, or 6 per cent, and 795 negroes, or 8 per cent.

Henry is one of the 66 counties of Georgia having negro majorities. Until 1890 the county had a white majority, but 10 years later a negro majority, and in 1910 a still larger negro majority. Henry is one of the 28 counties showing an increased negro ratio during the last 10 years. The negroes at present are 51 per cent of the entire population. White reports 9,669 whites in the county in 1845, or only 74 fewer than in 1910. However, Henry has lost territory to three or four other counties since 1845.

At present the population is 59 per square mile, and the rank of the county in this particular is twenty-eighth.

Three towns absorbed the increase of population, or 97 per cent of it, as follows: McDonough, present population, 882; increase, 29 per cent; Hampton, population, 1,093, increase, 134 per cent; and Locust Grove, population, 716, increase, 181 per cent.

AREA.

According to "Georgia: Historical and Industrial," the area of Henry County is 215,680 acres; according to the 1910 United States census it was 207,360 acres (approximate); according to the 1910 county tax digest it was 196,762 acres. Such variations in size occur in the various reports for almost all the counties of Georgia. Nobody knows how large Henry or any other county is without accurate, official county surveys. Strange to say, very few counties in the State have such surveys.

FARMS.

The land in farms amounts to 161,182 acres, but the improved land in farms is only 85,327 acres; that is to say, barely more than two-fifths of the county is in cultivated farm areas. Here, then, is plenty of room for home seekers.

In 1910 there were 3,062 farms, an increase of 25 per cent in 10 years. A little more than one-half of these farms were less than 50 acres in size. The average size of all farms was 63 acres, but the average size of improved farms was only 38 acres. No farms were reported to the census takers as being 1,000 acres or more in size.

But the tax digest of 1910 reports 16 landholders owning 1,000 acres or more each, or nearly 22,000 acres in all.

WEALTH.

The aggregate wealth of the county, on the 1910 county tax digest, was \$3,336,499; but farm property alone was reported in the 1910 census as worth \$6,373,486, or nearly twice the total aggregate wealth of the county. In the 1910 census, farm land alone was worth \$4,195,339, but on the 1910 tax digest this land was returned at \$1,404,935; that is to say, at a 33½ per cent valuation.

It ought to be said, however, that farm lands are returned for taxation in this and every other county at a relatively higher valuation than other forms of taxable wealth. The trouble arises in the fact that one county returns its properties at a fourth, another at a third, another at a half, and in one instance at more than the census valuation.

The result is that 107 counties of the State received from the State treasury in 1910, in pensions and school money, nearly \$800,000 more than the State received from those counties in taxes. That is to say, there are only 39 counties that support themselves, and these 39 are required to contribute to the support of the other counties. It is in this way that Henry County in 1910 received from the State treasury \$8,604 more than the county paid into it.

Property ownership among the negroes shows in Henry, as in other counties, a remarkable increase during the last census period. In 1910 they owned 8,472 acres, a 10-year increase of 118 per cent; \$63,024 worth of farm animals, an increase of 152 per cent; and aggregate wealth amounting to \$175,630, an increase of 123 per cent during this period.

The per capita wealth of negroes in the county was \$17. The per capita wealth of the whites was \$338. The per capita wealth for both races was \$167. Ninety-seven counties of the State in 1910 had a higher per capita wealth.

DISTRIBUTION OF WEALTH.

A little more than one-third of the land values on the tax digest in 1910 was city real estate and a little less than two-thirds was country real estate. Of the 3,062 farms in the county, only 813, or 27 per cent of them, were cultivated by owners, 712 white and 101 black. The farms cultivated by white owners decreased 36, or 5 per cent, during the 10 years; while the farms cultivated by negro owners increased 46, or 83 per cent. Two thousand one hundred and thirty farms were cultivated by tenants, 891 white and 1,349 black. Seventy-two per cent, or nearly three-fourths of the farms in the county, were cultivated by tenants. During the census period the cultivation of farms by owners fell from 32 per cent to 27 per cent.

The extent and the increase of tenancy in Henry County mean, as everywhere else, a steady deterioration of soils and farm properties, a low average yield of all crops whatsoever, and increasing difficulty in maintaining effective country schools and country churches. The problem is rendered still further difficult by the fact that in the South 51 per cent of the tenants move every year. Ninety-four counties in Georgia have a larger per cent of farms cultivated by owners and a smaller per cent cultivated by tenants.

Counting out the population of McDonough, Locust Grove, and Hampton, we have 18,236 people in the country regions of Henry County; and counting each farm owner to represent a family of five, we have a home-owning country population of 4,065; that is to say, in the farm regions of Henry we have more than 14,000 landless, homeless people. Nearly 4,500 of these were white.

Upon the 1910 county tax digest it appears that 55 landholders, owning 500 or more acres, owned altogether 45,522 acres; that is to say, a little more than one-tenth of 1 per cent of the population owns more than one-fifth of all the land. But it further appears that 16 landholders, owning 1,000 acres or more each, own 21,977 acres, or a little more than one-tenth of all the land in the county.

Here is a remarkable instance of land ownership by the few and land orphanage for the many. When one considers that civilization is rooted and grounded in the home-owning, home-loving, home-defending instinct, one wonders what the future holds in store for Henry County.

FARM INDEBTEDNESS.

In 1910, 79 per cent of the farms cultivated by white owners were free from mortgage indebtedness, and 61 per cent of the farms cultivated by negro owners were free. These figures are below the averages for the State, which are 82 per cent for white owners, and 71 per cent for negro owners. Both white and black owners considered, the average freedom from indebtedness is 77 per cent. Seventy-three counties of the State make a better showing in the matter of freedom from farm indebtedness.

DOMESTIC ANIMALS ON FARMS AND RANGES.

In 1910 there were 5,965 cattle, a gain of 11 per cent during the census period; but there were 3,073 dairy cows, an increase of 38 per cent. Horses, 1,455, a gain of 30 per cent (but a decrease in home-raised colts from 76 to 44). This is perhaps the largest gain in horses in the counties of Georgia. Usually there is a loss in horses. Mules, 2,791, an increase of only 5 per cent, which is perhaps the lowest increase in mules in the counties of the State; but home-raised mule colts decreased from 49 to 21 during the 10 years. Hogs, 5,613, a loss of 22 per cent. Poultry, 52,349, a gain of 14 per cent, but barely more than half the poultry in the county in 1890. Bee swarms, 878, a loss of 60 per cent. In 1890 there were 397 sheep in the county; in 1900, 119, but in 1910 none. But there were 1,184 dogs on the tax digest of that year.

Since we can not have in Georgia a dog license tax law, as eight other States in the Union have, might we not have a dog-muzzle law and put an end to the horrors of hydrophobia, as England, Germany, and the Canal Zone have done? Last year 486 people, mostly women and children, were bitten by mad-dogs in Georgia, and the State is spending \$10,000 a year to cure rabies. Surely we value our children in Georgia more than we value our dogs.

CROPS.

The 1910 census reports the crops of the county as follows: Cotton, 63,899 acres, an increase of 20 per cent during the census period; average yield, forty-one hundredths of a bale, or just the same as in 1900. Fifty-five per cent of the cultivated area was in cotton. Only two other counties in Georgia had a larger portion of their cultivated land in cotton—Morgan and Jasper, 61 per cent each—but 56 counties have a larger yield per acre. Henry County cotton ranks high and is in great demand with the eastern mills. (Georgia: Historical and Industrial.)

Corn, 2,688 acres, a loss of 10 per cent during the census period; average yield, 12 bushels, a gain of 9 per cent. In 1910, 23 per cent of the cultivated area was in corn. Thirty-three counties had an increased acreage in corn. Henry was one of the 113 counties that lost in corn acreage during the 10 years. Thirty-six counties had a larger yield per acre.

Oats, 3,319 acres, a gain of 39 per cent; average yield, 17 bushels, a gain of 70 per cent. The average yield for the State was 15 bushels.

Wheat, 2,327 acres, a loss of 63 per cent; average yield per acre 10 bushels, a gain of 43 per cent. The average yield for the State was only 8 bushels.

Sweet potatoes, 442 acres; average yield, 86 bushels, a little below the average for the State.

Dry peas, 2,755 bushels, a gain of 16 per cent.

Hay and forage, 2,676 tons, most of which (2,038 tons) consisted of grains cut green.

HOME-RAISED FOOD SUPPLY.

It will be seen that the home-raised meat supply in Henry is meager, consisting in 1910 of one-third of a beef, one-third of a hog, and 10 poultry per person. Recently cattle have been selling on the hoof in Chicago at 12 cents per pound and pork sides at \$12.55. The meat supply of the country steadily falls behind the increase in population. Meat in the future promises to be still higher. It looks like the farmer's chance. At all events, he can afford to sell; he can not afford to buy at present prices.

Considering only the population and the work animals of the county, the 1910 grain crop of Henry fell short of what was needed as food and feed for man and beast by 139,271 bushels. With corn at \$1.10 a bushel and flour at \$6.25 a barrel (to-day's quotations), the people of Henry County are spending about \$200,000 to supply this deficiency. The 1910 census reported \$41,428 spent by the farmers for feed alone. Add the money sent out of the county for work animals, for meat, bread stuffs, and fertilizers, and you have a total of more than \$600,000 that must be charged against the farmers' profits year by year. It is a king's ransom, annually paid to aliens and strangers for supplies that might be raised at home.

SCHOOLS.

The 1911 report of the State school commissioner shows 37 schools for white pupils 1 less than in 1900) and 37 for negro pupils (11 more than in 1900). There were 84 white teachers for these 37 schools, from which we conclude that the county has a number of two and three teacher schools. That looks good. Of the white teachers 57 had first-grade or life licenses and 27 had at least one year of training in normal schools.

In 1911, 2,458 white pupils, or 82 per cent of the school population, were enrolled; and 1,821, or 70 per cent, were in average attendance. These are high percentages; nevertheless, 269 white children were not registered in the schools for so much as a single day during the year, while 406 were barely more than registered.

In the negro schools, 2,370 pupils, or 71 per cent of the school population, were enrolled, but only 1,572, or 47 per cent, were in average attendance. In Henry, as in almost every other county of the State, the attendance of negro children upon the country schools lags behind the whites.

There were 454 white children registered in the first grades, but only 300 in the second grades; that is to say, 154 children, or more than one-third, had dropped out of school, most of them to take up the burdens of life with one brief term of schooling in the first-reader classes. Two hundred white children in Henry reach the seventh grades; that is to say, more than half of the children who enter the country schools disappear before they have received the full benefits of them.

These facts are disturbing, but Henry makes a far better showing than most of the counties of Georgia in this particular. Only 34 negro children reach the seventh grades, or a little more than 1 in 100.

Sixteen white schools in the county give high-school courses to 418 white pupils; that is to say, 15 white children in 100 in Henry reach the high-school classes. In Clarke, Cobb, and many other good counties of Georgia barely more than 2 or 3 white country children in 100 reach the high-school grades.

There are 4 negro schools in the county giving high-school instruction to 46 pupils; that is to say, 14 negro children in 1,000 get as far as the high school.

The county board in 1911 received from the State \$20,465; from local or municipal taxation, \$1,348; from tuition fees, \$15,169; from incidental fees, \$2,025; from donations, \$1,798; and from other sources, \$1,250, making a grand total of \$42,147. Only six county boards in Georgia spend more money than this for common schools (Bibb, Chatham, Dodge, Fulton, Richmond, and Whitfield). No other county board in Georgia receives so large a sum from tuitions and incidental fees.

The county board spent \$36,836 for the schooling of white children and \$1,780 for the schooling of negro children, giving 118 days of free schooling to white children and 100 days of free schooling to negro children.

The cost of schooling a white child per month was \$1.50. Seventy-six counties of Georgia spent more for this purpose; for instance, Clay \$3.03, Pike \$3, Terrell \$3.09, and Quitman \$4.76.

The cost of schooling a negro child per month was 55 cents. Eighty-two counties of the State spent more money for this purpose.

The county board owns 31 of the houses in which the 74 schools are taught, their value being \$36,150; average value, \$1,165 each. Three buildings are owned by municipalities, their value being \$35,150. The average value of two of these is \$17,500 each. The Baptist denomination owns one school property valued at \$40,000. The total investment in school property is \$111,300. Only 6 counties in Georgia have more money invested in school property (Bibb, \$335,000; Carroll, \$144,000; Chatham, \$482,000; Colquitt, \$181,000; Early, \$125,000; and Richmond, \$750,000).

Seventeen schools are equipped with 719 patent desks. Seven white schools and one colored school report school libraries.

Forty children are transported in school wagons to two schools at a total cost of \$501. The consolidation of schools and the transportation of children has made great headway in other States, but the movement lags behind in Georgia. A beginning in a small way has been made in 36 counties of Georgia.

Far better than most counties in the State, Henry is able to establish a county-wide, local-tax school system. Already 29 counties have established such systems, giving to the country child chances at an education equal to those of the city child.

The salaries paid white male teachers in Henry average \$80, and white female teachers \$45. How can Henry maintain efficient country schools upon salaries ranging from \$250 to \$400 a year?

The salaries paid female negro teachers is \$18 a month or \$90 a year. The negro teacher worth only \$90 a year is probably worth nothing at all, or worse.

The problems of public education can be solved only by local initiative, local pride, local self-sacrifice, all of which means a liberal local tax for schools. The problem has been solved in no other way in any State of the Union.

ILLITERACY.

The latest available figures upon illiteracy by counties in Georgia are in the 1908 State school census.¹ At that time the illiteracy of white children of school age in Henry was 4 per cent; of negro children of school age, 26 per cent; average for both races, 16 per cent. One hundred and six counties in Georgia have a lower illiteracy rate. However, the school illiteracy of the county fell from 22 per cent in 1903 to 16 per cent in 1908.

¹ This narrative was written before the publication of the results of the general census of 1910.—Ed.

LEADING HIGH SCHOOLS.

In 1911 the leading high schools of Henry County were located at McDonough, E. D. Gunby principal, no report rendered to the State school superintendent; Hampton, C. C. Gilbert, principal, 5 teachers, 24 high-school pupils, 5 graduates; Stockbridge, Mrs. O. E. Ham principal, 15 pupils, no graduates; Locust Grove, Claud Gray principal, 7 teachers giving entire time to high-school subjects, 1 giving part time, 8 teachers in all, 273 high-school pupils, 25 graduates.

The school at McDonough is a four-year high school, accredited by the university with 14 units required for graduation.

The Locust Grove Institute is a senior four-year accredited high school, with 16 units required for graduation and 25 units offered. This school is under the control and direction of the Flint River Baptist Association. Mr. Claud Gray, A. B., has been its principal for many long years. It has a high rank among the fitting schools of the State. It offers ample high-school courses; but even more and better it offers rare advantages in character development under Mr. Gray.

CHURCHES.

Little information can be assembled out of the reports of the conferences, association, and synods of Georgia for the simple reason that the counties in which the churches are located are never indicated. We are therefore calling upon intelligent, well-informed citizens of Henry County to know, for each race: (1) The number of strictly rural churches, (2) the number of churches located in towns and villages, (3) the number of country churches with ministers' homes alongside them, (4) the number of churches with preaching once a month only or twice a month only, (5) the number of Sunday schools, (6) the Sunday schools conducted the whole year through, (7) the total church membership of the county, (8) the total Sunday school enrollment, (9) the number of country churches that have grown in numbers and influence in the past 10 years, (10) the number that have been standing still, (11) the churches that are dying or have died in the past 10 years, and (12) how many country churches are served by ministers not resident in the county?

Sixty-three per cent of the people in Henry County are church members, almost the highest per cent in Georgia and nearly twice the proportion of church communicants in the United States.

This information can be had without reference to denominations or the names of ministers, thus avoiding invidious comparisons. This subject is an important inquiry by the ministerial associations of the counties. The Baptist Home Field and other home mission publications are calling for exact information concerning the country church. Will not the ministers of Henry County supply this information?

The main matter is to know accurately whether or not the country church is increasing or dwindling in numbers, power, and influence. In Clarke County, for instance, outside of Athens and the small towns and villages, there are only two white country churches left in an area embracing 100 square miles. During the past 25 years four white country churches in Clarke County have died and have utterly disappeared.

The church statistics from year to year show that upon the whole 60 odd million people in America, or two-thirds of the whole population, are outside the pale of any church whatsoever; that in membership the church has simply marked time during the past 10 years; and that 2,695,000 white children in the South are not in the Sunday schools.

The matter to be ascertained is the status of the country church in Henry County.

PUBLIC SANITATION.

There are no facts in print upon public health in Georgia by counties. Our State board of health collects and publishes no vital statistics, as is done in many Southern States, and in almost all States in other sections of the Union.

Under the law of 1901 every county may have a county health board and a county health officer, charged with public sanitation and public education upon the subject of preventable diseases. Strange to say, only two counties in Georgia have such health officers. Considering that 40,000 people in Georgia die every year from preventable diseases alone and that 15,000 of these are helpless infants, the matter of county health boards becomes urgent.

Public spirited citizens and legislators ought to know what the State health boards of North Carolina, Florida, Louisiana, and Texas are doing, the laws under which they work, the support they receive, and the wonderful results they are accomplishing. Georgia is far behind in the matter of public health. The physicians of every county would render a great service in taking the initiative in the creation of county health boards.

IMPROVED PUBLIC HIGHWAYS.

Bulletin No. 41 on Public Roads (United States Department of Agriculture, 1909) reports no improved public highways in Henry County. A recent report on public roads in Georgia by the State geologist, September, 1912, reports \$13,000 spent upon public roads and bridges in Henry County in 1911; 34 convicts, 25 mules, and \$1,800 worth of road machinery employed upon public roads, but no improved public highways built. Presumably the efforts of the road force were spent upon patching roads.

The county officials report four steel bridges built in 1911; and also that effort has been concentrated upon the grading of the county roads in preparation for surfacing with topsoil and sand-clay.

What can be done in building improved public highways with a small sum year by year is well illustrated by Rockdale County. Attention is called to the booklet issued annually to the taxpayers of the county by the board of county commissioners, W. J. Eakes, chairman, Conyers, Ga. It shows the sources from which all monies were received; to whom, when, and for what all moneys were paid out; the miles of good roads built, the patching done and in what districts, the cost per day, per convict, and per mule, together with details of other expenses concerning road building. It is not only a model effort at road building, but it is a model of account keeping and account rendering. Mr. Eakes will send this pamphlet to anybody writing for it.

The foregoing studies are submitted to people in Henry County who have a genuine concern in public well-being and progress. The club is asking them for further information, for corrections, and such extensions as will make the report full and fair. At the last it will be a 10-year balance sheet for the county, showing the gains and losses during the last census period.

In order to put the report to its best uses, a detailed quiz is added, provoking thought upon conditions, causes, and consequences, and making the report available for teachers and school officials, physicians, preachers and church officials, club women, farmers and farmers' wives, who are genuinely interested in their home community.

Intimate knowledge of one's own home community and county is certainly just as important as scholarly knowledge of Greece and Rome.

IX. CLUB MEETINGS: CLUB STUDIES AND DISCUSSIONS.

The Georgia Club meets regularly from 9 to 10 o'clock every Monday morning for informal, general, free-and-easy discussion of the particular subject or phase of Georgia life under review at the time in the chosen order of topics and studies.

The members have been more or less prepared for these discussions by the work they have already done upon their home counties and upon the State at large (as already indicated). The facts they have been handling are the facts found in familiar surroundings. They are keenly alive and eager to know their significance when set against a large background of thinking. Conditions, causes, consequences, and remedies begin to be big with meaning.

The students have free access to the volumes upon economics and sociology in the club headquarters; a small, well-chosen, and valuable department library.

The programs are announced a week in advance.

The following subjects have been discussed in the club sessions during the three years of its existence:

1. Density and sparsity of population; economic and social effects.
2. Twenty-eight counties of Georgia lost farm population during the last census decade; causes and consequences.
3. The isolation of life on American farms compared with the village farm life of other lands and countries; causes and effects.
4. The Black Horse-Shoe Belt of Georgia; an historical sketch.
5. Twenty-eight counties in 1910 show increased negro ratios, and twenty-two decreased negro ratios of population. Why?
6. The nine largest Georgia cities show decreased negro ratios in 1910. Why?
7. Negro farmers in the South increase faster than negro population in general (except in West Virginia, Louisiana, Texas, Florida, and Oklahoma). Why? Conclusions.
8. Just the reverse is true of white farmers (except in Kentucky). Why? Conclusions.
9. The significance of farm and home ownership; the decreasing cultivation of farms by owners in 120 counties of Georgia: Causes and effects.
10. A county with a large number of small landowners who live on and cultivate their own farms, in contrast with a county containing a small number of large landowners who, for the most part, rent their lands to tenants: The economic and social outlook of each.
11. The social ills and evils of land ownership by the few and land orphanage for the many; a concrete study of two counties in contrast; of England and Germany in contrast.
12. Restoring the land to the people; in France, Prussia, Ireland, and New Zealand. The outlook in America.
13. The increasing landless multitudes of England and the United States; causes and consequences.
14. Tenancy farming in the South; its origin, increase, and extent; causes, remedies, and outlook.
15. The relation of sparsity of population and fertility of soil to farm tenancy.
16. The economic and social effects of cash tenancy in contrast with share tenancy.
17. The increasing landless, homeless multitudes in 120 counties of Georgia; causes, consequences.
18. Why the tenant farmer raises cotton mainly and so little of everything else.
19. Competitive tenant rents: A study of farm life in Belgium. Beginnings of the system in Georgia.
20. The relation of cotton farming, by the tenancy system, to illiteracy.
21. Tenant leases, long and short. Effects.
22. Is it better business to rent or to own a farm in Georgia?

23. The 107 dependent counties (counties receiving from the State treasury more than they pay into it); the extent of the dependency and explanation of the same.

24. Per capita wealth in Georgia. Why so little?

25. Average value of farm lands per acre; a study in the county tax digests. Account for the wide variation in values. Conclusions.

26. The rise and the multiplicity of small banks in farm centers.

27. Agriculture and manufacture in Georgia compared: (1) Capital invested, (2) people employed, (3) total value of products, (4) average wages earned. Conclusions.

28. The tax system in Georgia: The inequities apparent.

29. Negro property ownership; increases, causes, effects, outlook.

30. Georgia has barely more cattle and considerably fewer sheep and hogs than in 1850; causes; significance.

31. The Texas cattle tick; the infected area; tick eradication, methods and progress.

32. Hog cholera; the new serum remedy.

33. The boll weevil; progress eastward; economic and social effects.

34. Home-raised feed and food supplies in Georgia; the facts; conclusions.

35. The annual cotton wealth in a Georgia county compared with the aggregate wealth of the county accumulated during its entire history. Query: What becomes of this vast sum year by year, and why does the wealth of the county accumulate so slowly?

36. Cooperative farm enterprise; achievements of the farmers' unions; cooperative creameries, successes, failures, and causes.

37. The cooperative farm-credit associations of the Continent of Europe: A simple account of the principles involved, methods of business, extent of operations, benefits to the farmer; opportunities and obstacles in the South.

38. Public city markets; advantages to the surrounding farm regions; to the city consumers; the city markets of the United States.

39. Railroad facilities: A special comparative study of the nine Georgia counties with no railroad traversing them.

40. Improved public highways; what they are, kinds and costs per mile, values; progress in Georgia counties.

41. Investment in farm machinery per acre in Georgia; a study in comparisons.

42. Horsepower per farm in Georgia; a study in comparisons.

43. The redirected country school: The ideally desirable, the actually possible.

44. Noteworthy achievements in country schools in Georgia.

45. Local taxation for schools: Arguments, tactics in the campaign therefor.

46. Georgia compared with other States in local taxation for schools.

47. The consolidation of schools and the transportation of children: Where wise, where unwise; progress in Georgia.

48. Miss Jessie Fields and the Page County schools, Iowa.

49. Kern and the Winnebago County schools, Illinois.

50. School mortality in Georgia.

51. Illiteracy in Georgia: Causes and consequences.

52. The socialized high school; reasons therefor.

53. High school and college statistics in Georgia compared with other States.

54. A study of contrasts between country and city high-school percentages; between Georgia and other States.

55. School supervision; a study of Georgia in contrast with Kentucky and West Virginia.

56. The investment in common-school property and in automobiles in the counties of Georgia.

57. School libraries: Books suitable for school libraries; progress in Georgia compared with other States.

58. Corn clubs, garden clubs, canning clubs; organization, purposes, values.

59. School fairs; exhibits, premiums, values.

60. A dog-tax license law and the public-school fund; the nine States that have such a law.

61. The school as a country-life defense.

62. The school as an occupational, social, and recreational center.

63. Compulsory education; history and results in the United States.

64. Country gatherings, amusements, and recreations: A contrast with earlier days.

65. The redirected country church; McNutt and the Dupage County church.

66. The farming pastors of Georgia.

67. John Frederick Oberlin.

68. The pastorless churches of Georgia.

69. Significant Sunday school statistics in Georgia.

70. Country homes for the country ministers: Necessity for them.

71. County church surveys in Georgia, Pennsylvania, Illinois, and Missouri.

72. County ministerial associations; suggested schedule for a year's research and study.

73. The church as a country-life defense.

74. The State board of health; functions, support, values, and results compared with other States.

75. County boards of health and health officers; necessities, functions, values.

76. Vital statistics; importance; necessary laws and legal machinery.

77. Preventable diseases; how prevented; necessary organization.

78. Medical inspection of schools; progress and results.

79. A dog-muzzie law and rabies; Georgia in contrast with the Canal Zone, England, and Germany.

80. Doctors as citizens and patriots; as a country-life defense.

81. Women's clubs; opportunities and achievements.

82. Women's clubs; suggested program for a year's research and study.

83. Not more people on the farm, but an efficient, satisfying country civilization.

84. Preserving a safe balance between country civilization and industrial city civilization.

85. Effects of improved farm machinery, telephones, and automobiles on country civilization; a study of Iowa.

86. Effects of rising land values and the speculative interest in farm lands.

87. Does a growing city, like a standing army, tend to destroy the region upon which it subsists?

88. Is mankind entering a new era of overshadowing industrial city civilization? Causes, effects.

89. The challenge of the cities. (Strong's book.)

90. The challenge of the country. (Fiske's book.)

91. Will improved farm methods alone solve the problems of rural life? Or better schools alone? Or better churches alone?

92. The church as a social center.

93. The school as a social center.

94. The importance of sympathetic federation of rural-life agencies.

X. COUNTY SURVEYS: THEIR USES AND VALUES.

ORIGIN.

Nearly 60 years ago Le Play began in France a direct investigation of facts concerning the household finances of wage earners; but only within the past few years has his method been generally applied to economic and social problems in this country.

Direct inquiry into human life conditions and problems has been stimulated by the investigation by Cornell University of agricultural

conditions in Tompkins County, N. Y.; the rural surveys of several counties in central Pennsylvania, Kentucky, Tennessee, Illinois, Maryland, Indiana, Ohio, and Missouri by the home mission board of the Presbyterian Church under Dr. Warren H. Wilson; and the Pittsburgh, Birmingham, and other surveys by the Sage Foundation.

These surveys were so ably conducted and the facts disclosed by them were so humanly kindling and compelling that at once general and special community surveys became the order of the day, and with good reason.

The physical sciences long ago brought their fields of investigation into close range. Things themselves were taken into examination and critically weighed, measured, counted, and compared, in laboratories increasingly supplied with instruments of precision. The human-life sciences have come tardily into direct investigation and study of the facts involved in their particular conclusions; first, physiology and medicine, then psychology and education, then the other social sciences one by one, and last of all men have begun to ask what are the human-life facts that ought to be known and considered if the church rightly conceive her mission in the earth and adjust herself efficiently to her task.

The results are significant. There is no lack of sympathy and concern, no lack of willingness and readiness among men and women to devote themselves to "the relief of man's estate in the earth." Yet our cities are threatened by the problems of congestion and submergence on the one hand, while our rural regions suffer from increasing depletion and stagnation on the other. The trouble is we have only latterly begun to know the facts and their significance. The recurring high tides of moral reform in our large cities regularly subside into a low ebb of indifference and unconcern. The church has found it almost impossible to create an adequate interest in the problems of the home mission field. The challenge of the country goes unanswered because good people do not realize that the country school is more and more, not less and less, a problem as the years go on, and that the country church is a waning and not a waxing influence.

Mainly, the trouble all the while has been that the facts were not known, or were known only by a few. They were not generally and commonly known by all. The home mission enterprises of every denomination would be amply and instantly equipped with men and means if only actual conditions were keenly and generally realized.

The simple fact is that nothing so certainly evaporates overnight as any form of social or religious enthusiasm. A main matter is to lodge in the mind a knowledge of the facts and to convince the second sober judgment. In no other way shall we have an adequate foundation of knowledge and motive for better schools and churches in the cities and the country regions alike, and for a saner assault upon the

sources and agencies of evil everywhere. Short of a vivid realization of actual conditions we shall go on indefinitely with social palliatives, hoping to set things right with "soap, soup, and social salves." Otherwise we are not likely to fix upon remedies that are fundamentally curative and reparative in any field of necessary reform.

Out of the efforts and studies of the Georgia Club have emerged certain clear convictions, namely, that observation and analysis of social conditions must precede interpretation; that facts without opinions are useless, and that opinions without facts are impertinent or mischievous; that it is idle to speculate upon questions of betterment without intimate knowledge of social structures and functions; that we must investigate social realities before maturing a code of social doctrines; that economic facts alone do not furnish a basis for final social conclusions; that the production and distribution of wealth ought to be means to largeness and fullness of life; that individuals and communities, whatever be their state, are never hopeless but always improvable; and, lastly, that the club is barely entering upon a great field of learning, wherefore the necessity for modesty, tact, and finely tempered zeal.

Above all arises the conviction that citizenship is not a subject to be taught or learned bookishly; but an attitude, an outlook, an impulse to act one's part intelligently, worthily, and wisely as a servant of the common good.

The time spent by the students in the study of their home counties, sometimes two or three months, brings them into a new field of information, into new methods, new purposes, and motives. The new field of learning is the home community, which until now has been an unconsidered source of stirring, stimulating scholarship. The new method (that is, new to them for the most part) is direct acquaintance with the facts themselves, critically examined, compared, and classified; along with handling all available sources of information about their home counties—the census returns, the reports of the State officials, the county tax digests, the grand jury presentments and other courthouse records, the county handbooks, the minutes of the church associations, the school library section of Georgia history and biography, and what not.

Assembling information from all these various sources, drawing a balance sheet for the home county, showing gains and losses during a 10-year period, the comparison of the home county with all the other counties of the State, the inquiry into conditions, causes, and consequences, all mean valuable discipline as well as valuable enrichment of mind.

The student suddenly finds himself intensely interested—so much so, as a rule, that a vigorous correspondence sets up between him and the county officials or other well-informed people at home. He

struggles to make the report accurate, full, and fair. He rejoices when his county makes a good showing. He bewails the deficiencies whenever they appear; but in either event, he knows far more about the home county, as a rule, than anybody ever knew before. There is in this knowledge a direct, invigorating appeal to motives. He suddenly finds himself restored to his people with strong desires to serve them in the schoolroom, in the church, in community life, in community enterprises, in every way that means progress for his home people and home county.

Meanwhile, correspondence with the nonresident, affiliated members in the counties arouses interest and concern back among the home folks. The bald figures that have been assembled are translated into simple running narratives. The home papers ask for these county reports and devote space to them, sometimes for a half dozen issues or more, until they are fully given to the public. As a rule, the editors meanwhile keep half a column or so full of editorial squibs and comments.

The specimen narrative in this bulletin is now running in the Henry County Weekly. The editor writes: "Enroll me as an affiliated member of the Georgia Club. I am thoroughly in sympathy with its purposes. I have intended of my own motion writing an editorial commending the report and asking my subscribers to read it." The ministers of the county are considering the proposed church survey. The faculty of the Locust Grove Institute is using the report upon the county as a sort of textbook in their senior classrooms and for faculty discussions.

Thus the studies of the Georgia Club not only serve to arouse the students themselves, but also the general public in the home counties. Any kind of survey that does not have a dynamic effect of this sort is a dead and useless thing.

HOW ONE COUNTY USES THE CLUB REPORT.

As a rule these county reports are promptly used to promote progress in some direction or other. For instance, the Laurens County school commissioner is now struggling for a 3-mill tax in support of a county-wide school system. The county paper last week contained the following article, which this official has worked out of the Georgia Club report upon Laurens County:

WHAT LAURENS NEEDS AND HOW TO GET IT.

While some 15 or 20 of Dublin's most prominent citizens have shown you the needs of the city, only a few have taken into serious consideration the needs of a great county like Laurens. This article was contributed in support of the efforts of County School Commissioner Whitehurst for better education conditions.

The greatest present need of Laurens County is undoubtedly a better educational system. The only way to get it is through the levy of a small local tax.

Often a subject may be presented more clearly and forcibly by a series of questions. Listen:

Do you know that in every 100 children in Laurens County 18 are illiterate?

Do you know that although our white population at the last census increased 22 per cent, yet the average attendance upon the public schools dropped from 2,354 to 2,196?

Do you know that 527 white children drop out of school every year after just *one* term of schooling?

Do you know that in 1911 in the county schools only 72 per cent of the white school population was enrolled and that the average attendance was only 42 per cent?

Do you know that 115 other counties in this State have a smaller illiteracy per cent than Laurens?

Do you know that the present tax values of Laurens are so low that in 1910 this county received \$5,512 more school and pension money from the State than she paid in?

Do you know that although the cotton crop of Laurens led the State last year, only 50 per cent of the farms cultivated by white farmers were free from mortgage or other debts?

Do you know that 133 other counties in this State made a better showing?

Do you know that in 1910 Laurens County farmers spent \$36,325 for feed alone?

Do you know that there are 328 landowners living in Dublin and 137 landowners living outside of the county who own just 154,510 acres, or nearly *one-third* the farm acreage of Laurens County?

Do you not realize that these landowners will pay just one-third of this local school tax?

Do you know that, in 1911, 68 school-teachers had only *temporary* license to teach?

Do you know that every other county in the State has a larger percentage of teachers possessing first-grade or life licenses?

Do you know that the city of Dublin spends about \$12.12 per year upon the schooling of each child, while Laurens County spends only \$3.56?

Hasn't the country child just as much right to the benefits of an education as the city child?

Do you know that the county school board owns only 15 of the 113 schoolhouses in Laurens?

Do you know that 93 of the houses in which schools are taught are owned by private individuals?

Don't you know that proper schooling educates the bad things *out* of your children as well as educates in the good things?

Do you think that \$1.50 on every \$500 of your property is too much to put into the future of your children?

With the above facts in your mind, try to construct a sensible argument against a local tax for schools, and you will find you have given yourself a difficult task. Laurens County is one of the greatest in the State. Its possibilities are still greater. Proper education, and that alone, will bring them out as they should be.

CHURCH AUTHORITIES ALERT.

Not only are the school officials calling for these county surveys, but the church authorities in Georgia have been keenly interested in the work and purposes of the Georgia Club. Dr. Victor Masters, editorial secretary of the Baptist home mission board, and Dr. John S. Jenkins, secretary of the home mission board of the North Georgia Conference, have been keeping in touch with the club, and both are scheduled to address the members of it at the first opportunity.

The club is always largely represented at the annual meeting of the Students' Missionary League of Georgia. The club is in no wise a religious organization, but we have come strongly to feel that we are investigating just the facts and forces that ought fervently to engage the attention of the church authorities as well as the educational and business forces of the State.

It seems to us quite clear that the country church is an agency of tremendous usefulness, because country people will line up behind and follow a favorite preacher when they will submit to no other leadership whatsoever. As a rule, they resent leadership among themselves. In virtue of their calling, individualism is the dominant instinct of farmers. If only the country church could have a new and truer vision of the kingdom, and could adjust itself to the changed conditions of existence, the country civilization of the South might remain what it has always been, the most precious heritage we possess. The great call is for adequate vision and understanding on the part of country preachers.

THE SPIRIT OF THE CLUB.

The club sentiment is paraphrased from one of Senator Carmack's addresses. It appears on the membership card as follows:

Georgia: To her every drop of my blood, every fiber of my being, every pulsation of my heart is consecrated forever.

I was born of her womb; I was nurtured at her breast; and when my last hour shall come, I pray God that I may be pillowed upon her bosom and rocked in sleep within her encircling arms.

Paul Sabatier, speaking of art in the middle ages, says:

These artists of genius who, like those of Greece, knew how to speak to the people, were for the most part humble workmen. They found their inspiration not in the formulas of the masters of monastic art, but in constant communication with the very soul of the nation.

And so as humble workmen, the Georgia Club members aspire to be in constant communication with the very soul of Georgia, for sake of themselves, the school, and the State.



A COMPARISON OF PUBLIC EDUCATION IN GERMANY AND IN THE UNITED STATES

By GEORG KERSCHENSTEINER
DIRECTOR OF THE SCHOOLS OF MUNICH, BAVARIA



WASHINGTON
GOVERNMENT PRINTING OFFICE
1913

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- No. 18. Teachers' certificates (laws and regulations). Harlan Updegraff.
- No. 19. Statistics of State universities, etc., 1910-11.

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- *No. 1. Course of study for rural school teachers. F. Mutchler and W. J. Craig.
- No. 2. Mathematics at West Point and Annapolis.
- No. 3. Report of committee on uniform records and reports.
- No. 4. Mathematics in technical secondary schools.

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LETTER OF TRANSMITTAL

DEPARTMENT OF THE INTERIOR,
BUREAU OF EDUCATION,
Washington, D. C., April 7, 1913.

SIR: For many years American students of education have studied more or less carefully the schools of Germany. From these studies they have brought back many valuable ideas which are gradually changing for the better, let us hope, courses of study and methods of teaching in American schools and to some slight extent their organization and management. Studies of American schools by German educators have been less frequent. Recently, Dr. Georg Kerschensteiner, whose ideas and work as director of the schools of Munich are more or less familiar to all students of education in America, spent some time in the United States for the purpose of studying our elementary and secondary schools. The accompanying manuscript, a translation by Mr. W. Carson Ryan, jr., of an article recently published in the *Monatshefte für deutsche Sprache und Pädagogik*, Milwaukee, Wis., gives in some detail Dr. Kerschensteiner's opinion of American schools of this grade. By comparing our schools with the German schools, point for point, he emphasizes their weakness and strength very effectively. Such a comparative study of the schools of two great nations, by a man of Dr. Kerschensteiner's ability and knowledge of educational processes, has unique value. I therefore recommend that the manuscript be published as a bulletin of the Bureau of Education.

Respectfully submitted.

P. P. CLAXTON,
Commissioner.

The SECRETARY OF THE INTERIOR.

A COMPARISON OF PUBLIC EDUCATION IN GERMANY AND IN THE UNITED STATES.¹

To examine in detail the educational systems of Germany and the United States is no easy task, for it involves the study of a very complicated administrative function on the part of nations which possess no central machinery for it, as in France, but in which every individual State exerts sovereign power. Had not old traditions, common living conditions, and certain other centrally-regulated public functions produced various similarities in the educational systems of the separate States, a comparison between the educational systems of the two nations would be impossible. The most we could do would be to compare the school system of Bavaria, for instance, with that of Massachusetts, or education in Prussia with that in New York or some other State; but we could not compare the system of education in the United States with the system of education in the German Empire.

If the feeling of nationality is alive among a people, unifying forces appear of themselves, without compulsion from any central authority, even in decentralized governmental functions. This is true of the little Swiss federation as well as of Germany and America, and it is an indication that healthy organization, adapted to the living conditions of a nation, will make its own way everywhere.

Voices are occasionally heard in Germany to-day demanding imperial laws for public education. I should consider any such imperial control a misfortune. The Cantons of the much smaller Swiss union are already opposing a uniform law, and the same opposition may be observed in the German States. Much less likelihood would there be of assent on the part of the separate States in America, should some one step forward with a proposal to unify the school system of the nation. For this jealous insistence by the States upon their sovereign power in school affairs I have only praise. Nothing is more dangerous for the schools than an all-inclusive system that reaches out over broad domains, having no regard for territorial conditions, much less for purely local demands. Freedom in administration is one of the most important requisites for the success of the public schools.

¹ Translated by permission from *Monatshefte für deutsche Sprache und Pädagogik*, Milwaukee, December, 1912.

In this particular there is an important difference between the individual States in Germany and those of the United States of America. Within the individual States in Germany the school system is much more uniformly arranged than in those of the United States. The tendency of the German to uniformity has, in my opinion, even gone beyond the bounds of necessity, while in America, on the contrary, many an individual State concerns itself too little with the administrative duties of the local communities. As everywhere, here, too, the golden mean is the best.

The dangers of too great freedom on the one hand and of too great paternalism on the other are evident. They can nowhere be better studied than with respect to the excessive freedom in the United States and the paternalism in Germany. Excessive freedom leads to the development of private educational institutions to an unusual degree, and, since these are frequently established for profit rather than for cultural aims, or in other cases are denominational in purpose, they may become a real disadvantage to the State. Excessive freedom of educational control allows certain irresponsible communities to neglect their school systems utterly, a condition which is impossible in a system even measurably controlled by the State. Thus we see in the United States to-day the sharpest contrasts between school systems that are incredibly bad and others of the highest possible type that would do credit to the finest civilized nations of the globe.

On the other hand, an excessive paternalism obstructs the development of education to a considerable extent. New ideas, which are taken up with enthusiasm in American cities, elaborately tested as to their practicability, and ultimately discarded as worthless, or, if found good, developed further in exemplary fashion, make their way with difficulty in paternalized school systems, or languish for lack of a fair attempt at realization. A gifted educator who has the direction of a city school system in America, by years of efficient service may gain the entire confidence of the people and by the exercise of wisdom and originality may make astounding progress in the development of the public schools, as the example of St. Louis shows. In the standardized school systems of the German cities there is far less chance of this, because it is necessary to overcome too many traditions that are sanctified by law and always vigorously defended.

Even in this respect a wise governmental regulation involves fewer disadvantages than excessive freedom, because it deprives the impractical enthusiasts, of whom there are so many in the field of education, of the possibility of doing too great harm through experiments that fail. Such reasonable governmental regulation also compels negligent communities to do their duty and furnishes the less wealthy communities with needed support.

Just as the first difference that is revealed to the educator who knows both countries is between freedom and constraint in the educational systems, so a second difference is to be found in the distribution of authority between the people on one hand and the Government on the other, with respect to the carrying out of the educative function. In the United States the affairs of the school are in a much higher degree the affairs of the people than in Germany, where the citizens of a community have little or nothing to say about their school system. The local school boards in Germany are nowhere chosen by vote of the citizens. At most the local government may select some or all of the members of the school board. These men, however, are not chosen for their interest in the schools, but more or less according to their political affiliation or with regard to their ability to cooperate in the other varied tasks of local government. ✓

With us, school questions as such never come directly to the people, and accordingly the people are for the most part accustomed to accept the educational program that emanates from the Government. Only in the legislative assemblies of the separate States can the people find a real voice for their own ideas; and these assemblies are, of course, not made up solely from the school's point of view, but from many other points of view, among which the economic, sectarian, or purely political are conspicuous.

Conditions in this respect vary in different parts of the United States, but not so greatly as in the matter of freedom in school administration. I find three main methods by which the school authorities are chosen in American communities: (1) The boards are elected by direct vote of the citizens; (2) they are named by the mayor, who is himself elected by the people; (3) they are the product of several indirect processes of election, the community being divided into a number of school districts, each of which chooses its district school member, and from among these a member is delegated to the central school board. I can not say that the second or third form of school board organization would prove an advance over present methods for Germany; in fact, as far as my observation goes, it generally proves to be unsatisfactory, since municipal corruption is not yet exterminated in all parts of the United States. But where the local school board is elected directly by vote of the people, I have observed that the best men and women of a community are generally chosen; those, in fact, who possess the liveliest interest in educational questions. The work of such a school board must, assuredly, produce its best fruits in the freedom enjoyed by public education in America.

In any case, the average man of the people in America is much more interested in the affairs of the public school than is the average man in Germany. Not the least of things that brings this about is the fact that school meetings are public and every citizen may take

part in the debate. In the daily press, reports and discussions on educational topics occupy a space which, according to my observation, amounts to fully ten times that which the German newspapers devote to the same subject. To be sure, it must be said that such thoroughly democratic conditions only become a real blessing to the school and contribute to its advancement in higher degree than governmental care alone, when the average education of the citizens from whom the school board is elected is sufficiently high. Otherwise such a democratic arrangement may become the exact opposite of progress, and there are plenty of instances in the United States where this is the lamentable fact.

In a nation like Germany, I believe that free, direct election of school boards by the citizens would not only be unobjectionable in the overwhelming majority of cases, but, given certain limitations of the power of the school boards, would make the public school system a greater boon to the community than it is to-day. Above all, however, the interest of every individual citizen would be aroused in his school system to a much greater extent, and his active sympathy would thereby be much stronger than at the present time in Germany. The development of the school system in old Scotland, which I became acquainted with several years before my studies in the United States, convinced me absolutely of this.

Although in the two differences just described the bright and dark sides of education are almost equally shared by the two nations, there is a third difference in which Germany seems to me to have a distinct advantage over the United States. It is the difference between dependence and independence of the teaching force. In Germany, although most States have no special school law on the subject, and many of the rights demanded by the teachers have not yet been granted (many of them can not be granted, either), the independence of the teacher is incomparably greater than in the United States. This comes, above all, from the employment of the teacher for life, and the privilege of retirement assured him in all the German States from the beginning of his service.

In general, the German teacher, regardless of the kind of school in which he is employed, can not be deprived of his position and livelihood as long as he fulfills his duty and is guilty of no infraction of law. If he gets sick, he continues to draw his salary from the beginning of his employment, either the full amount during the period of sick leave, or a reduced sum in the event of temporary retirement. If he grows old and can no longer render service with his full strength, then a good-sized pension, generally 75 or 85 per cent of his regular salary, relieves him of the fear of having to spend his old age in poverty. Neither the local elections nor the general elections can make any change in his position. Whether he is liked by the *Schubst*

and the inspectors or not has nothing to do with his livelihood, as long as he does his duty and is not a prey to consuming ambition. Thus he is free from the anxiety that occasionally handicaps the professional activity of his American colleague. He does not need to curry favor with his superiors, much less with the citizens of the community, and in case of sickness or other misfortunes he does not have to use up his strength to the point of exhaustion from fear that he may lose his position. More recently, to be sure, in some of the States and cities of the Union, the teachers have also been given life tenure and a claim on a pension after a certain term of service.

It is true that in many German States the pay of the teachers is insufficient, in view of the present high cost of living; but the same is true in the United States. In general, however, besides security of employment, there is the fact that in the big cities, at least, the pay is adequate, and if we consider that the purchasing power of the American dollar, nominally more than 4 marks, is actually only 2 marks (which is the fact quite generally, according to my experience), then the pay of the German teacher in all kinds of educational institutions, including the universities, is on the average distinctly better than in the United States.

In the North Atlantic States at the present time the average salary of the male teacher (city and country both) is \$60 a month; in the South Atlantic States it is \$36, while in Germany the monthly pay of the male teacher amounts to at least \$50 on the average. In Massachusetts, according to the Report of the Commissioner of Education for 1911, the pay of the woman teacher averages \$60. In Bavaria the average pay of the female teacher is \$36; in the city of Munich it is about \$60. In the secondary schools (*Gymnasium*, *Realschule*, *Oberrealschule*) the average monthly salary in all Germany is about \$110 for the male instructors. The regular docents at our German *Hochschulen* receive on the average a considerably higher income than the ordinary instructors in the different State universities of the United States. The income from Government funds of the ordinary university teacher, amounting to \$200 on the average in Bavaria, is frequently augmented as much as three times the amount through students' fees.

The same degree of independence that comes to the teacher in Germany through salary and pension provisions is not allowed him in respect to political and religious views. Yet I doubt whether in reality this independence in political and religious matters is guaranteed to any greater extent in the United States, with all its political and religious freedom. The affairs of education are of too delicate a nature to allow those who are intrusted with their execution to be able to differ too loudly and too openly from the political and religious views of those who have employed them. This is just as true in the freest democratic nations as in constitutional monarchies.

I believe that any teacher in the United States who in public meetings or in the classroom would push a vigorous campaign in behalf of absolute monarchy would feel as little security in his tenure of office as a teacher in Germany who publicly demanded the abolition of the monarchy and the introduction of a pure democracy.

Only in one respect is the public school of the United States really independent and free, and that is with respect to religious questions. Here we come to the fourth difference. In Germany the school, at least as far as the elementary school is concerned, is denominational on principle; in the United States it is undenominational on principle. In Germany there is no public school the schedule of which does not call for at least two to four, or even five, hours of religious instruction every week. In the United States instruction in religion is barred from the curriculum. In many German States school supervision is assigned to the local pastor, whether he is equipped for school problems or not. In the smallest community in the United States the local supervision is intrusted to a school board composed of the laity, which delegates the task wherever possible to a technically trained schoolman. These two contrasting conditions are more or less a reflection of the differently regulated relation between the state and the churches in the two countries.

In the United States, where the complete separation of church and state has been carried out, it is natural that in the performance of a task which in the last analysis serves for the education of citizens, the state should not allow to any church special rights in the public schools. In Germany, where state and church, in accordance with old traditions, are still struggling for mutual subjection, an important institution like the public school is naturally the object of a clerical-political struggle which can not be settled save through compromise. Such a compromise is without danger for the school, if the clergy of the church in question are not at the same time active politically.

The only disadvantage which comes from it is that the teacher of the school has a superior who is frequently insufficiently prepared for the function of supervision. This disadvantage is, however, a sensitive point with the teacher, because he himself can not rise to become a supervisory official. For the school itself, however, this disadvantage is not present if, as is the rule in Germany, the higher school officials are professional educators. But when the supervisory official is at the same time politically active, then there come real disadvantages for the school, into which I can not enter further.

In general, complete separation of church and state is not of itself a good thing for public education. For as a result of it we find regularly, indeed I might almost say necessarily, a large number of private schools, the work of which is entirely removed from the

supervision of the state. I believe that from such conditions certain real dangers arise for the state itself; dangers that are impossible where, thanks to the compromise between the state and the churches, state supervision shines into the furthest corner of the sectarian school. Furthermore, with respect to the complete exclusion of religious instruction from the public schools, we may with justice contend for two sorts of opinions. I for my part take the stand that religious instruction is no less essential to popular education than instruction that is intellectual or manual or moral in a general sense. Thus I consider it the duty of the public school not only to foster the religious needs of the millions, but to develop them into a finer religious life. To be sure, a denominational school is not necessary for that; this aim can be attained in the undenominational school just as well, at least in the kind of undenominational school that has developed in Germany, with its compulsory religious instruction. All that is necessary is teachers of genuine religious feeling.

There is still another difference between the schools of Germany and the United States, less important than those already mentioned. It is the difference between schools where the sexes are separated and schools where they are not. In the United States what is termed "coeducation" generally forms one of the basic principles of school organization. In elementary school and higher institution alike the classes are not arranged according to sexes; in Germany, on the contrary, wherever separation is feasible it is practiced. In the small country communities, where only one teacher is employed, boys and girls are educated together in the same school. In the cities we find the mingling of boys and girls in the same class until the fourth school year, not for reasons of principle, but on administrative grounds. Small classes of boys are filled up by the addition of girls, and vice versa, in order not to have to educate two classes at double expense. But in the cities from the fifth year up the sexes are invariably separated, and the same is true in all *Gymnasien*, *Realgymnasien*, and *Oberrealschulen*.

There are people who consider coeducation a fundamental of school organization. I can not accept this view. In general I incline to the opinion that the behavior and morality of our children, particularly the boys, is better if the two sexes go through school together, assuming, that is, a definite high standard of character for the whole school and its teaching force. But I am still more firmly convinced that in all equality of educational opportunity for boys and girls the method of education and the aim of the education must be shaped according to the nature of the two sexes. This differs more and more the older boys and girls become; and the more this differentiation in nature shows itself, the more necessary does it become to select subjects of instruction accordingly, and even in the same subjects to shape

the instruction in accordance with the nature of each sex. The more necessary these considerations become, however, the more difficult it is to formulate so-called coeducation, or, as it ought more correctly to be termed, coinstruction. There are real difficulties in this, and even the American high school has not solved them.

When we turn our attention to the actual organization of the common school, we notice no fundamental differences between the two nations, but there are certain notable variations. The common school of the United States, which includes elementary and grammar school, is constructed in much the same way as the German *Volkschule*. In both countries it includes normally 8 school years with an average of 25 instruction periods per week devoted to secular subjects. The only essential difference is that in the German States without exception compulsory education covers 10 months of the year, while in many American States the length of the school year falls as low as 8, 6, or even 5 months.

There is still another point in which I have observed a difference, namely, in the age of the pupils in the various classes. Whereas in the large cities of Germany the average age of the class of the *Volksschule* generally corresponds to the age for which it is intended, in the large cities of the United States we find the average age in all the classes essentially higher. Thus in the eighth grade in New York I found only 33½ per cent of the boys at the normal age of the completed thirteenth year. Another 33½ per cent had completed their fourteenth year, 10 per cent the fifteenth, and 4 per cent the sixteenth year. Thus it may be said that in the upper classes of the grammar grades in the larger cities of the United States the teachers work with more mature material than in Germany.

If the difference in the elementary schools of both nations is not an essential one (for even the course of study covers in general the same ground), there is a much greater difference in the secondary schools. The secondary schools in Germany do not connect with the grammar school, as in America, but with the elementary school. Thus only the first 4 school years in Germany are common for all the children of the population. Our secondary schools follow directly these first 4 school years (in many north German States they follow the first 3 years). The secondary schools cover 9 years and lead directly to university studies. In the United States, on the contrary, all the students, whether destined for the university or not, pursue without exception the entire elementary and grammar school course. Generally with the completed fourteenth year, or later, the pupil enters the high school, where he remains only 4 years. Beyond the high school is the college, and not until after he has finished that does the real university work come. In a few cases I found high schools with a course of 6 years, thus connecting with the sixth instead of the eighth school year. This was not at all common, however.

The total number of years of schooling, from the entrance of the 6-year old child into the common school to the matriculation of the 18 or 19 year old youth into the college (in Germany the university), is about the same in both countries, 12 or 13 years. But it is undeniable that the average intellectual maturity of the German pupil at entrance to the university is considerably higher than the average intellectual maturity of the student entering the American college. In my opinion this is due to several causes. In the first place, it is due to the fact that the stricter scientific method that characterizes the work of the secondary school, as compared with that of the elementary school, begins too late, if it is postponed until the fourteenth year, as in the United States. The habit of strict logical thinking can not be inculcated early enough. But the unsifted scholastic material of the common school does not permit the same intellectual demands upon it as the selected material of the secondary schools. Thus the secondary schools of the United States not only start their work too late, but they have to eliminate immediately in their students various habits of purely empirical thinking, a condition with which the German secondary schools do not have to contend. Admittedly, the secondary school in north Germany begins too early, when it starts at 9 years of age; but just as surely does the American secondary school begin too late.

Another reason for the lower productivity of the American high school lies in the inadequate provision by the State for the training of high-school teachers. In Germany the secondary school teacher after leaving the gymnasium has to have at least four years of university study preparatory to his special field. Then he has to undergo a searching examination on his specialty, and with this examination comes a year of pedagogical training. Thus the German secondary schools generally have a reliable guarantee that they are carrying on their work with none but well-equipped teachers, at least in so far as examinations and professional training can furnish such a guarantee. Whether the school is in the smallest village or in the largest city, everywhere it may rely upon having equally qualified teachers.

In the United States, on the other hand, only the largest cities have an available supply of reasonably well-trained teachers for their high schools. The period of training for the American high-school teacher is generally fairly long, for after leaving high school he must spend two years in normal college, or four years in university work if he wishes to obtain the degree of B. S. or A. B. The universities and colleges in the United States, however, are by no means as nearly uniform in their standards as the German universities, and the result is that many American high schools have a very inferior class of teachers.

A third difference between German and American secondary schools lies in the heterogeneity of the intellectual discipline. On

this point I should prefer not to express the results of my own observations, but they tend in the same direction as the observations of President Pritchett in the fifth report of the Carnegie Foundation (p. 64): "The high-school student acquires a superficial knowledge of many subjects and learns none with thoroughness. He lacks the hard fiber of intellectual discipline." I do not wish to disguise the fact that our German university teachers utter numerous complaints of the same tenor with regard to the graduates of the German gymnasium, but it can not be denied that the average demands of the German universities upon their students are much more exacting than those of a large number of American universities.

This lack of severe intellectual discipline in the United States is increased not a little by the fact that in so many of the high schools a large number of the courses are elective. If the student does not like the strict methods of a particular teacher or the difficulties of a certain course, he may in many of the schools choose a different subject the following year and so endeavor to evade severe training. To an entirely too great extent the student in the American high school does only what he likes to do, or what can be accomplished with a minimum of effort, and not what really helps him intellectually. This is utterly impossible in the German schools. Every student without exception must either adjust himself to the regular program throughout the full nine years of study, and satisfy certain minimum requirements therein, or else leave school. Furthermore, many tasks are assigned to him that are in no sense pleasurable; he occasionally execrates these, but in the end he does them under the hard stress of necessity in order to reach his goal, the university. Thus the student of the German secondary schools is held strictly to painstaking intellectual effort and accustomed to it, more so than in the majority of American high schools.

This is a dark side of the picture, doubtless much lamented in America also, and in many cities energetic measures are taken against it. But there is a bright side, too, the lack of which in Germany is very deeply felt. There are features of the American high school that develop certain active qualities of the will which fail to thrive in the German schools with their often much too stringent compulsion. The great freedom of the American high school fosters individual initiative, courage, cheerfulness, good fellowship, human qualities which are just as important as the passive qualities of will engendered in the German schools: Patience, persistence, endurance, thoroughness. The greater freedom which the American high school allows the student likewise forces the teachers in these schools into a service of comradeship with their pupils. The whole intercourse in the good American schools is based more on mutual confidence than with us. This shows itself outwardly in the touching loyalty which the

American student has for his high school, a loyalty which we unfortunately miss in the German student. It is very much to be desired that the German secondary schools learn far more than hitherto from this good feature of the American high school, and on the other hand the American schools would be benefited if they would adopt something of the strictness of our German secondary schools.

The German secondary schools have still another dark side. Their declared purpose is not to educate the people in general, which is the oft-declared aim of the American high school, but to prepare for the university or technical school, and thereby for the Government service. But since in Germany the Government service, because of the lifelong tenure of office, means an absolutely secure livelihood once a position is obtained, more students throng into the higher institutions than are needed for the Government work, and these persons are lost to commercial and industrial vocations. Thus Germany suffers more and more from an intellectual proletariat, a misfortune entirely unknown in the United States. Especially since the widespread development of the manual training high schools, with their careful fostering of technical education (a type of schools which we do not know at all in Germany), it seems to me that this danger has been put off indefinitely so far as the United States is concerned. For I have found a great number of graduates of these institutions working as apprentices in large factories, a phenomenon that would be sought in vain in Germany.

Generally speaking, the schools are in the midst of a rapidly increasing development in both nations. The great advantage that Germany possesses, in addition to the relentless thoroughness of the whole educational work, is in the well-regulated organization of a State-provided school system, which requires in each community a school as good as that of every other community, aside from the possibility of an ill-adapted teaching force, of course. But this advantage has been purchased at the expense of many qualities for which we must envy the American schools. It is to be regretted that the two nations are separated by so broad an expanse of ocean, for this distance tends to prevent large numbers of school men in both lands from making a mutual study of the educational institutions of the two countries. During my visit to the United States I gained the firm conviction that we could learn no less from the American schools than the citizens of the United States could learn from us. This is especially true of the common school, of which I have seen ideal examples in different cities. Indeed, it would be greatly desired that the German Government might arrange to have the American schools studied by German teachers, just as the American school authorities have been doing with us so generously for many years.

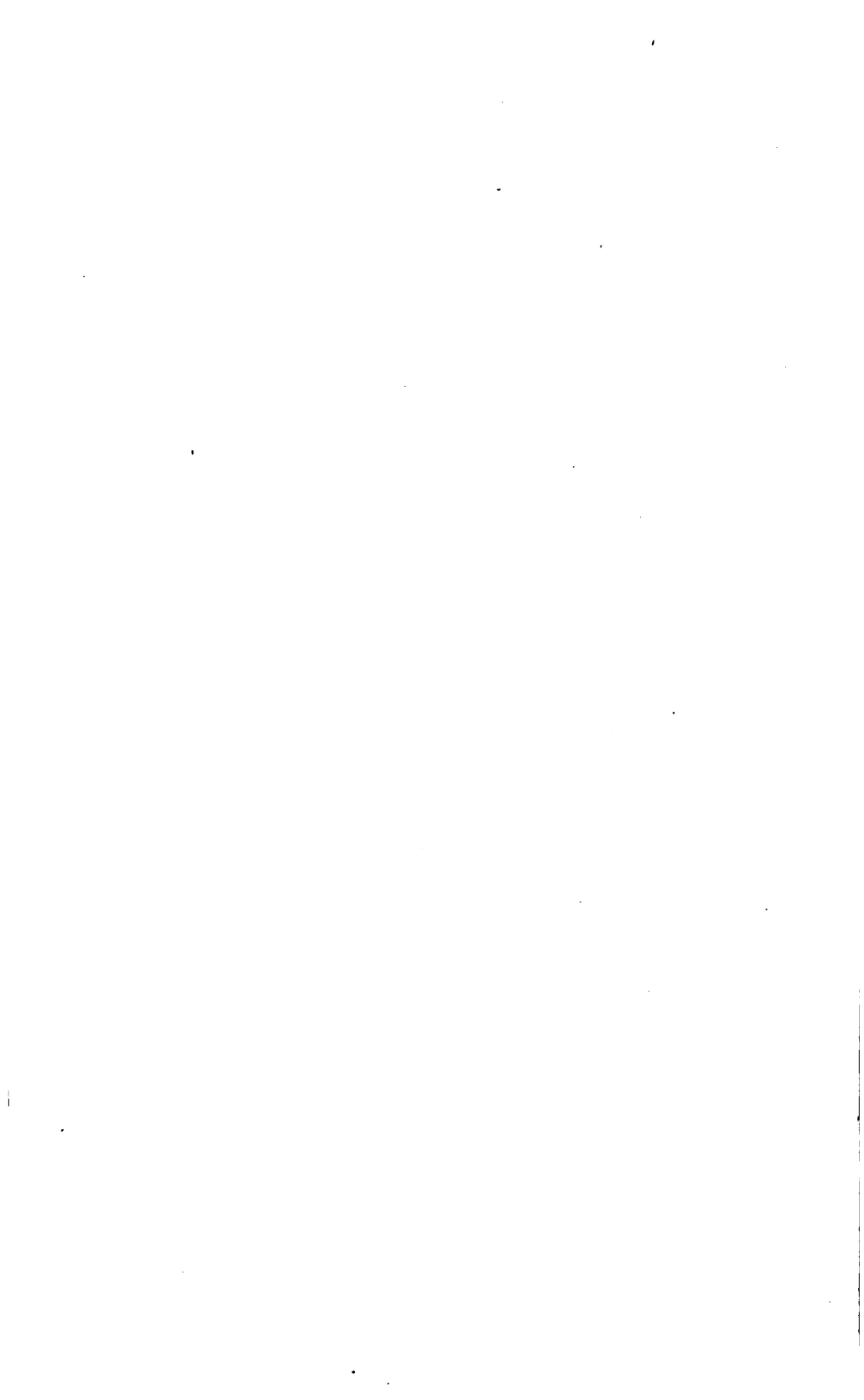


INDUSTRIAL EDUCATION IN COLUMBUS, GA.

BY

ROLAND B. DANIEL







LETTER OF TRANSMITTAL.

DEPARTMENT OF THE INTERIOR,

BUREAU OF EDUCATION,

Washington, D. C., April 4, 1913.

SIR: All are beginning to feel that the work of the public schools should be better adapted to the conditions and needs of the children, and that to attempt to run all children through the same kind of school mill, in the same way and in the same time, is not best. The city of Columbus, Ga., was one of the first in this country to work out certain phases of the problem of adaptation. The accompanying manuscript sets forth clearly how this has been done in two schools of that city. I recommend that it be published as a bulletin of the Bureau of Education.

Respectfully submitted.

P. P. CLAXTON, *Commissioner.*

The SECRETARY OF THE INTERIOR.

INDUSTRIAL EDUCATION IN COLUMBUS, GA.

In the year 1898 compulsory elementary courses in manual training and domestic science were introduced into the grammar schools of Columbus, Ga. This then advanced step in education in this section was taken in response to a general feeling that the school work of this city was not meeting the needs of the people. There was not, of course, a demand in so many words for practical courses for the schools, but there was expressed dissatisfaction with what was offered, and many children themselves showed their want of interest by leaving school as early as their parents would permit.

This work has since been extended through the first year and a half of the traditional high school, and differs little from the work done in these departments in many other cities. The plan has been to devote one double period a week to shop or laboratory work and one period to drawing, which to some extent is correlated. A building specially constructed and equipped for this purpose is used as a manual training and domestic science center for a group of schools, and all shop and laboratory work is done here. For the first four years these subjects are taught in a very elementary way by the grade teachers. After that the work is conducted by special teachers.

INDUSTRIAL WORK FOR NEGROES.

Industrial work was introduced into the schools for negroes at the same time that it was given to the white children, but since it is not identical it might be well to make some statement of the extent of the work in our colored schools. In these schools the industrial, as well as the academic work of the primary department (which includes the first, second, third, and fourth grades), is directed by the grade teacher. The industrial work in grades 5, 6, 7, 8, and 9 is conducted by special teachers for the various subjects taught. One hour per day is given in each of these grades to industrial work.

The boys divide time equally between the work in the carpentry department and the blacksmith shop. The section of the grade that gives one hour to carpentry to-day will spend one hour in the blacksmith shop to-morrow. In other words, they alternate between these subjects.

The girls give equal time to cooking, sewing, and laundering. When a class leaves the academic-department it is divided, one part

taking cooking, another sewing, and the other laundering; and the next day, of course, they change.

The child is therefore given industrial work five hours a week for five years. This is thought to be sufficient to give his education a practical turn and in a measure help him to begin the work of life on a higher level than he could possibly do otherwise. Then, too, such training enables the boy or girl to advance more rapidly.

The value of the equipment for the blacksmith shop would not exceed \$150, not counting the cost of the special building. The wood shop is equipped only with benches and hand tools, and the total value of this equipment would not exceed \$200. The sewing department is equipped with a half dozen sewing machines, tables, chairs, etc., and the cost of equipment for this room is \$200. The kitchen is equipped with one coal-burner range, one gas range, and individual equipment for classes. The value of this is about \$150. The equipment for the department of laundering is very simple, consisting of tubs, ironing boards, ordinary flatirons, electric irons, etc., and is worth \$75.

The main purpose in the work for the negroes is to prepare them for the lines of industrial work open to them. No attempt is made to give them training in the use of high-grade machinery. The school has developed a number of good blacksmiths, carpenters, cooks, seamstresses, and laundresses. Pupils who remain in the schools long enough to complete the course receive in compensation for their labor upon leaving school about twice what they would receive for unskilled labor such as they would be able to render without such training. It is often the case that one of these boys is able to earn \$2 a day at the age of 17, when his father, without such preparation, receives \$1.25 for unskilled labor.

A SCHOOL FOR CHILDREN OF MILL OPERATIVES.

Soon after the introduction of manual training and domestic science into the public schools a school was established in a cotton-factory district, under the name of the Primary Industrial School, for the children of mill operatives. Since that time the name has been changed to the North Highlands School to remove any prejudice that might exist against the school on account of its name.

The mill-operative element in Columbus comprises about one-fourth of the city's white population, and there are possibly 800 children of school age among these operatives. In the absence of compulsory education laws, few of these children prior to this time attended any school, and when they did enter they seldom remained long enough to secure its benefits. Less than 5 per cent continued in school after they were old enough to work in the cotton mills.



A. SCHOOL FOR CHILDREN OF MILL OPERATIVES.



B. DINNER CARRIERS AT THE MILL.



A. CLASS IN SEWING.



B. GARDENING FOR GIRLS.

This school was first organized in an old rented residence ill-adapted to its uses save in the matter of the social feature. It remained here for three years, or until 1904, when the board of education, in order to more fully carry out the purposes of the school, purchased at a cost of \$10,000 a large colonial home, with spacious grounds, near the center of the mill population.

The main dwelling, which contains 10 large rooms, is located on a three-fourths of an acre lot, and through the kindness of the owner an adjoining half-acre lot is used, and thus the grounds are enlarged. On the place purchased there was a modern barn, which was transformed into an almost ideal structure for a kindergarten and a wood shop for the boys.

This school is not made to conform either in course of study or hours to the other schools of similar rank in the system, for the board desires to meet the conditions and convenience of the people for whom the school was established. Classroom work begins in the morning at 8 o'clock and continues until 11 o'clock, with a recess of 10 minutes at 9.30. The afternoon session begins at 1 o'clock, and the school closes for the day at 3.30 o'clock.

The long intermission in the middle of the day is necessary in order that children may take hot lunches to parents, brothers, sisters, and others who work in the mills. Many of the mills are some distance from the school—some more than 1 mile away. Most of the children, therefore, walk more than 2 miles during the noon hour. Besides, they are compelled to wait 20 or 30 minutes for the operatives to eat their dinners before taking the baskets back. Some children earn several dollars per week by carrying such baskets to mill operatives. The price usually paid for taking lunch to one person for a week is 25 cents, and children often take lunches to several persons. They frequently style themselves "dinner toters" and the school the "dinner-toters' school."

The academic courses in this school are similar to the courses offered in the other schools of the system, except in its severer adherence to the "three R's." Knowing that the time is very limited in which these children will attend school, more attention is given to what may be regarded as the fundamentals. While the prescribed course contemplates seven years, few continue after the fifth or sixth year, so strong is the call of the mills. Not more than 1 per cent finish this school and pursue their studies further.

The three morning hours and the first hour in the afternoon are devoted to academic studies, while the last hour and a half of the day is given to practical work. On account of the simplicity of the work, one teacher may have three or four sections in one room, giving 15 or 20 minutes to the lesson, according to grade.

There are in this school 175 in attendance at this time. All boys are required to take elementary courses in wood work and gardening. The shop equipment is simple, consisting of a dozen workbenches, with vise and the usual bench tools. The total cost of these would not exceed \$300. The tools used in gardening are hand plows, rakes, hoes, spades, pitchforks, etc. The value of these is about \$50. The boys who work in the wood shop to-day work in the garden to-morrow, and on the other hand those who work in the garden to-day go to the shop to-morrow, alternating between the two.

Girls are given work in basketry, sewing, cooking, poultry raising, and gardening. Time is about equally divided among these activities. The value of the equipment in these departments is about as follows: Machines, etc., for sewing, \$100; kitchen and dining-room equipment, \$200; incubator, brooders, poultry house, etc., \$200.

In all of these lines of work it is now the hope of the school only to better living conditions a little among the people for whom it was especially organized. The transformation is necessarily slow. In the beginning, no doubt, the advocates of this type of school thought that many might be induced to continue in school and do more advanced work, especially along vocational lines. In this respect the school has been a disappointment to some. We are seldom able to induce pupils to finish even the limited course offered in this school.

The present teaching force was selected from the corps of the grammar schools of the city system. Only teachers who showed special aptitude for dealing with pupils such as they would meet in this school were transferred, and then only after they had requested the change. The principal and five assistants are all women that have had training along industrial as well as academic lines.

The school formerly observed the same time for vacation as the regular grammar schools of the system. It was found, however, that there was considerable loss in not keeping in constant touch with these people. After a three-months' vacation it required some time to reorganize the forces that make for good attendance and social welfare. Besides, the grounds, with the swimming pool, shower baths, gymnasium, etc., are of more value to pupils and people (all of whom have access to the grounds) in summer than any other season of the year. So the school is now in session all the year round, and pupils are promoted quarterly. The teachers take their vacations at different times, each one working three out of four quarters of the year. The teachers live in the school, which is open to the people of this community in the evening, as well as at other hours when the school is not in session.

While this school may not have met the full expectations of some of its friends in some respects, it has more than done so in others. The social work, such as looking after and advising in cases of sickness, has been especially helpful to the people of the community. Every day the principal and teachers visit some of the homes, sometimes distributing needed charity and giving helpful suggestions on sanitation, caring for the sick, etc.

Confidence is now so strong that one of the teachers every Saturday morning collects the physically defective ones in the community and takes them to the free clinic for operations or treatment. At first parents would see their children die rather than permit them to be operated upon, but now they seldom decline to permit them to be taken by a teacher to the free clinic, when in the judgment of the teacher it is necessary.

The school is used as a medium for the distribution of certain charity. One local woman's club supplies buttermilk in summer and soup in winter to the kindergarten pupils, while another undertakes to keep up a well-selected library suited to the needs of these people. A Sunday-school class of one of the leading churches has installed simple gymnasium apparatus. One generous man who is an employer of some of the people here donated a high-grade piano, that the young people might assemble in the evenings and have music. The best musicians of the city sometimes go out in the evening and play for them. Other employers often donate cash sums of money immediately preceding the Christmas holidays, that Santa Claus may visit the school at the appropriate time, bringing joy to the hearts of the pupils.

Organizations for the older people are maintained in the school under the direction of some of the teachers. Preceding each Christmas, the mothers assemble at the school and aid the teachers in making and arranging Christmas presents for each of the children.

The grounds, which are supplied with swings, joggling board, swimming pool, etc., are open to the children at all hours of the day and all days of the week. It is not infrequent that, when the mother goes to work at 6 in the morning, she sends her children to the school to enjoy the privileges of the grounds until the opening of the school at 8 o'clock.

While this school has done good work and its benefits have been felt, we are sure that the weakest point in it is in not being able to hold the children long enough to receive its full benefits. An enforced-attendance law would aid very materially in this respect.

THE INDUSTRIAL HIGH SCHOOL.

The favorable response of the people and pupils to the substitution of practical work in the elementary schools led to the suggestion and later to the establishment of a vocational school of high school rank. This suggestion was reenforced by the great need of more skilled labor in this industrial community. The name given to the school was the Secondary Industrial School, but this name was afterwards changed to Columbus Industrial High School on account of the seeming connection between this school and the Primary Industrial School mentioned above. It was thought in the beginning that the Primary Industrial would prepare pupils for the Secondary Industrial, and when it failed to do this, the names indicated a relationship that did not exist, and they were therefore misleading.

Columbus, being at the head of navigation on the Chattahoochee River, enjoys cheap and abundant water power. This fact, and its proximity to the coal and iron fields of Alabama, make it a manufacturing and industrial center of considerable importance in this section. There are located here a number of woodworking industries, iron works, foundries, cotton mills, ice plants, flour mills, etc.

Accordingly, in 1906, largely through the generosity of wealthy and well-to-do citizens and former citizens of this city, the Industrial High School was projected as a part of the local school system, and was formally opened in December of that year. It was the first school of this character in the United States so established and maintained.

A lot was donated containing $2\frac{1}{2}$ acres, located in the northern part of the city near the end of the car line, $1\frac{1}{2}$ miles from the center of the city; and upon this the main school building was erected. Since then the city authorities, realizing the great benefits that come from ample playgrounds, purchased for the school an adjoining lot of $1\frac{1}{2}$ acres, making in all 4 acres. This acreage will be sufficient to add other buildings and at the same time maintain an athletic field for tennis, basketball, baseball, football, etc.

While it was not emphasized at the time of the establishment of this school, the pure air and ample grounds have meant much to its pupils in the way of health, pleasure, and comfort. In fact, all that could be said in this respect for "country schools for city boys" can be claimed for this location. Some have entered this school who were subnormal in physical development, but who during the three years out here have developed into first-rate athletes. Indeed, the nature of the work within the school and the grounds without have produced fine physical results in almost every instance.

Plans were drawn providing for one central building and several smaller ones. The principal building was intended to be used for

administrative and academic purposes largely, and the special departments were to be housed in separate smaller buildings. So far the main building is the only one that has been erected. This building is 145 feet long, 75 feet wide, and has three stories besides the basement. It contains in all 40 rooms. The installation of an automatic sprinkler system gives ample fire protection. The cost of this first building was about \$70,000, and its total equipment is valued at \$30,000.

At the laying of the corner stone of the building there were a number of distinguished speakers, and in the light of subsequent results it will be of interest to note the prophetic words of some of them.

James E. Russell, dean of Teachers' College, said:

We have been engaged in developing a system of education in this country for about 300 years, and this school is the first of its kind in all our history to be dedicated to the proposition that the common man, as well as his more fortunate brother, is entitled to vocational training. We have colleges and universities and professional schools galore for those who can go to them, but nowhere in this country can the boy or girl who must earn a living at the age of 18 or 20 find the necessary industrial training given at public expense. * * * And you citizens of Columbus, in building this school, are entering into a solemn obligation to make it a success; you are duty bound to make it succeed, not only for the sake of your own children, but because you are voluntarily taking upon yourselves the task of leading the American people to a broader conception of public education than they have ever had before.

In speaking of the need of such a school in this section and in this city, G. Gunby Jordan, at that time president of the board of trustees, said in part:

To fill positions of prominence in our present and future mills and institutions, and to provide the South with valuable technical skill, the board of trustees of the public schools of Columbus have determined that our school system shall be a perfect one, concluding with this junior school of technology, this secondary industrial school, this trade school with academic department, where intimate reciprocity shall exist, a school which will give much from within and receive much from without. In its halls rich and poor will meet on equal terms as learners. Its departments will throb with life and grow with the world without.

Carleton B. Gibson, the superintendent of schools at that time, said of the school:

To generously maintain such a school will be giving to the people, the common people, the wealth-producing people, the very best there is in education. It will be fitting the youth for immediate honorable service to mankind, which is one of the chief functions of education, and for remunerative employment where their skill and efficiency will make themselves successful and will combine to the greater industrial work of the South.

The aim of this school is to give to the boys and girls of this community and contiguous territory an opportunity to make some definite preparation for life's work, as well as to give them the culture that may be obtained from the study of the ordinary high-school

branches, all of which are taught in this school except the languages. It was not and is not our purpose to make journeymen, but we do so prepare pupils that they may begin life upon a higher level than those who have not had their activities so directed; and we intend that their preparation shall be such that there shall be absolutely no limitations placed upon their advancement in their vocations in after years.

The school appeals strongly to that class of young people who are so industrially and commercially inclined that they leave school and accept positions where little skill is required, at meager salaries, rather than pursue to them meaningless and uninteresting courses. While it was not so intended particularly, young people are finding the work of this school a fine preparation for the higher technical institutions, such as the Georgia School of Technology and the Alabama Polytechnic Institute. About 25 per cent of the graduates of the school continue their studies in these institutions, where credit is given hour for hour for work done in the industrial as well as in the academic departments of the school.

The grammar schools provide a seven-year course including, besides the usual academic work, courses in manual training and domestic science, as mentioned above. Then pupils who complete the grammar schools may enter either the traditional high school or the Industrial High School. The former offers a four-year course of 180 school days per year, while the latter offers a three-year course of 225 school days per year. Pupils in the seventh grade (the last year of the grammar schools) are advised of the purposes and training that each of the high schools has to offer, and then they are left entirely free, so far as the school authorities are concerned, to choose between them.

A pupil may be transferred from one high school to the other if he and his parents and the superintendent are convinced that a mistake has been made in the choice of schools. There is no special articulation in the work of the two schools, and consequently there is usually a loss of a half year or more whenever a pupil is transferred. During the first year or two after the industrial school opened there were quite a number of transfers asked for, but now the purposes of the two schools are so well understood that not more than two or three transfers are made per year.

Pupils are not admitted to this school until they are 14 years of age. The average age at the time of entrance is 14.9 years. They are permitted to enter after they have completed the seven-year grammar-school course, making the terms of admission about the same as those for the traditional high school. Thus it will be seen that this school takes them just at that period of life when so many

drop out of school altogether, and prepares them for remunerative positions which in the past they have been unable to secure.

There is no prejudice against attending this school. There may be found here the sons of the well-to-do and the sons of the less fortunate, plying their work side by side in their overalls. The school is maintained by the people in the interest of no class, and its doors are open to all alike. A fee of \$5 is charged pupils living within the city limits for the use of all books and supplies for the term, and a tuition fee of \$15 is charged nonresident pupils, in addition to the above fee for books and supplies.

The school day begins at 8 o'clock in the morning and closes at 4 in the afternoon, for five days in the week. Only one intermission is given each day—from 12 to 1 o'clock. For the first three years the school was in regular session from Monday morning until Saturday noon, but now only those pupils are required to return on Saturday who have not maintained the required standard during the week. Many, however, do voluntarily come on Saturday for the purpose of working in the industrial departments on articles for their own use and pleasure.

While it was intended to duplicate in a measure conditions and hours that are maintained in the industrial plants of the city, it was found that some objection was raised to making school work so serious as to occupy practically the whole time of young people of this age for six days in the week. The pupils themselves objected to six days' work, and this perhaps grew out of the fact that all the other schools of the system had holiday on Saturday. The present practice is found to be more satisfactory from the standpoint of results and no doubt will be continued.

The school year begins the first Monday in September and closes the middle of July. Formerly the school was in session 11 calendar months in the year, but experience has taught us that it is better to give a vacation of six weeks in place of a month. In the first place, the old custom of having a three months' vacation between sessions was hard to overcome, and the fact that this school was in session so long after all other schools of the system had closed we found was affecting its attendance to such a degree that the board deemed it advisable to make this concession and extend the vacation two weeks.

All pupils are required to take academic work of high-school grade in mathematics, history, English, and science (see tabulated course of study). The extent of the work in these subjects is about the same as that of the usual high school. It may be seen that there are 720 school days in the four-year course of the traditional high school, while there are 675 days in the three-year course of the Industrial High School. There are, therefore, only 45 more days in the one than in the other, to say nothing of the difference in the length of the

school day. The traditional high school is in session $5\frac{1}{2}$ hours per day, while the Industrial High School is in session 7 hours per day, making a difference of $2\frac{1}{2}$ hours. In the latter a little more emphasis is placed upon what might be called practical topics, or those that bear most directly upon the shopwork and consequently upon the usual work of life, while in the former the academic courses embrace much that might be regarded as cultural without so much regard to the uses that it may be put to in ordinary life. For instance, in the course in English more time is given to composition, business communications, and forms in the Industrial High School than in the traditional high school; while on the other hand the traditional high school gives more attention to the study of pure literature. And so it is with the other academic subjects taught in the two schools. As a matter of fact, however, pupils who have gone from the Industrial High School to higher institutions enter the same class in the academic subjects (except the languages) as those who go from the traditional high school.

The academic work is related as closely as possible to the trades courses. For instance, the science teacher cooperates with the specialist who is in charge of the textile department in the matter of dyeing. The chemistry course, so far as the pupils in this department are concerned, has special reference to the work of that department; while in the domestic science department the chemistry has special reference to the analysis of foods and their nutritive values. In the department of English, pupils are required to take topics from their trades courses as subjects for themes, and the special teachers of the trades courses correct the papers with reference to facts, while the head of the English department criticizes and grades them with reference to their form and literary value. The problems in mathematics used in the classroom grow largely out of the work of the shops. And the history teacher presents his subject especially from the industrial point of view.

VOCATIONAL COURSES.

All pupils, besides being required to take the full three-year academic course, must choose one of the trades courses. One-half of each day is devoted to the industrial work and the other to academic studies. That pupils may keep in touch with real conditions in industrial life, they make frequent excursions under the direction of teachers to the mills, foundries, and machine shops. They there see work carried on in a large way similar to what they are attempting to do in a small way at school. Classes are carried, of course, where the work is similar to that which they are undertaking to do in the school shop; that is, textile pupils visit the cotton mills, while mechanic arts pupils visit the machine shops, foundries, etc. These



A. CLASS IN COOKING.



B. BOOKKEEPING.

visits are made about once a month, and the classes are absent from the school about two hours on each trip. The heads of the departments of the larger manufacturing plants have all shown a real interest in the students of the school in not only permitting them to visit the factories, but in explaining and calling attention to all special features.

The school offers for girls trades courses in millinery, dressmaking, and business training, while every girl is required to take the course in home economics. For boys, trades courses are offered in carpentry, machinery, textile work, and business training, and all boys taking the courses offered in the mechanical and textile departments are required to take a three-year course in mechanical drawing, that they may be able to make working drawings of machines and to build machines from blue prints down to scale.

HOME ECONOMICS.

In cookery there is individual equipment for 22 pupils. Each girl has a drawer in which are all the utensils necessary for ordinary cooking, and a storeroom furnishes a reserve supply for extra occasions. Each desk is supplied with a gas plate with two burners. For baking there are two gas ranges and a wood stove, while an electric toaster and percolater give training in the use of electricity as a means of cooking, and a fireless cooker also plays its part in the equipment. The cost of this entire equipment is \$500.

This course includes practical cooking, digestion of food, food values, cost of products and their preparation, and proper combinations for the child, the adult, and the invalid. In addition to the regular class instruction, practical work is done each day in the preparation of the school lunches, which are sold to the pupils and teachers of the school at a nominal price—just the bare cost of the materials used.

Some of the pupils depend entirely on this school lunch counter for their midday meal, while others only use it to supplement cold lunches brought from home. There are served here daily sandwiches, fruits in season, chocolate, milk and lemonade (in summer), and one "special." The last-named consists of soup, croquettes, potato dishes, various kinds of salads, pastry, cakes, ice cream. The price of a single sandwich is 3 cents, or two for 5 cents. The price of fruit varies with the market, but a pupil can buy at any time as much fruit as he would care for at one meal for 5 cents. Any one of the drinks mentioned is served at a cost of 3 cents, while the price of the "specials" varies from 3 to 5 cents. The average cost of a lunch is 10 cents.

One hour before the lunch period, at the time of the change of classes, a copy of the menu for that day is sent to every department

of the school, and orders are taken that there may be no waste of material in the preparation of the lunch. The items on the list are called to the class by the teacher and the number desiring each is recorded. The classes in home economics take turns in preparing and serving these lunches, which gives valuable experience in large-quantity cooking to be completed at a definite time. These school lunches are served in the general lunch room, but in addition there is a model dining room in which formal lunches are served from time to time, and this is required as a part of the course. A course dinner for as many as 40 people has been served here by the girls.

The following is a detailed statement of the course in home economics:

COURSE IN HOME ECONOMICS.

FIRST YEAR.

First term.—Study of carbohydrates, including vegetables, cereals, and flour mixtures, with theory and practical lessons under each; digestion and nutrition; place in diet. Laundering of dish cloths, towels, and table linen; ventilation, sanitation, and daily care of dining room and kitchen; care of pantries and refrigerators.

Second term.—Study of protein, fats, mineral matter, and water; uses in system, digestion; source and practical cooking under each. Physiology of digestion; elementary lessons in hygiene, laundry, sanitation, home decoration, household economy, with practical work in the care of kitchen and dining room. Preservation of food.

SECOND YEAR.

First term.—Review of five food principles, further cookery under each, with study of digestion, nutrition, source, methods of preparation, and place of each in the diet. Special study of and experiments with flours, cereals, and vegetables. Chemistry of cleaning and laundering; elements of bacteriology; principles of decoration and home furnishing; study of heating and ventilation.

Second term.—Cooking in groups; preparation of meals for limited numbers; study of menus as to desirability, suitability, and use. Dining-room work, serving meals, care of room, care of silver, linen, and china, table decoration, and training of servants.

THIRD YEAR.

First term.—Dietetics. Study of special menus as to use, desirability, cost and service; menus for families of different incomes; household accounts; direction of servants, planning of work, care of home, including daily and weekly care of kitchen, pantries, refrigerators, dining room, living room, and bedrooms. Economics of sanitation and heating; laundry and marketing with field work.

Second term.—Diet for invalids, infants, and growing children. Dining-room work; group work in serving meals from limited amounts; economy and physiology of nutrition, bacteriology in the home. General review of the first principles of cookery with regard to dexterity, celerity, and economical manipulation of materials.

DRESSMAKING AND MILLINERY.

The training in dressmaking aims to fit a girl not only to be able to save money by making her own clothes, but to be a means of livelihood. She is given practice in both hand and machine work, from the making of simple undergarments to the more difficult work of making dresses and doing fine handwork. The equipment in this

department consists of six machines of two kinds, six adjustable dress forms, two cutting tables, and the necessary cabinets for keeping the work. An electric motor shows how electricity saves both time and girl power, while an electric iron is a very necessary part of the equipment. The cost of this entire equipment is \$500.

In the third year the pupil is given instruction in millinery. This has a value for the girl who wishes to make her own hats, as well as for the girl who desires to use her education along this line as her means of support.

The following is a detailed statement of the course in dressmaking and millinery:

COURSE IN DRESSMAKING AND MILLINERY.

FIRST YEAR.

First term.—Cutting, fitting, and making of apron, cap, and sleeves. Study of measurements. General principles of machine sewing. Drafting pattern. Making of underclothes, drawers, underskirts, underwaist, and nightgown.

Second term.—Drafting shirtwaist pattern. Study of styles and materials suitable for shirtwaist. Making of tailored shirtwaist suit. Practice in sketching and varying the styles based on shirtwaist model.

SECOND YEAR.

First term.—Drafting, fitting, and making lined waist. Treatment of seams, whale-bones, hooks and eyes. Making a woolen skirt and drop skirt.

Second term.—Designing in stitchery and trimmings for entire gowns and selected parts. Study of color harmonies and contrasts, appropriateness in design and decoration for type figures, textures and purpose of gowns. Practice in sketching. Making of embroidered dress.

THIRD YEAR.

First term.—Hand sewing. Making of children's clothes. Drafting patterns. Selection of materials. Costume design and fulfilling orders. Skill in workmanship.

Second term.—Millinery. Remodeling old hats, renovating old materials, ribbons, velvets, curling of plumes; making hats of straw, velvet, chiffon, etc.; use of wire, making of wire frames; bonnets for children and elderly persons; lingerie and evening hats; hats for different occasions; study of color harmony, choice of materials, history of millinery.

The tabulated course in this department is as follows (in periods per week):

FIRST YEAR.

First term:		Second term:	
Cookery.....	3	Cookery.....	1½
Sewing.....	2	Sewing.....	2
Arithmetic.....	5	Arithmetic.....	5
Grammar and classics.....	5	Grammar and classics.....	5
Physics.....	5	Physics.....	5
United States history.....	5	Algebra.....	5
Physiology.....	1	Physiology.....	2

SECOND YEAR.

First term:		Second term:	
Cookery.....	3	Cookery.....	3
Sewing.....	2	Sewing.....	2
Rhetoric and classics.....	5	Rhetoric and classics.....	5
Algebra.....	5	Plane geometry.....	5
Chemistry.....	5	Chemistry.....	5
Civics.....	5	History of western Europe.....	5

THIRD YEAR.

First term:		Second term:	
Cookery.....	3	Cookery.....	3
Sewing.....	3	Millinery.....	3
Solid geometry.....	5	Trigonometry.....	5
Physics.....	5	English literature.....	5
History of western Europe.....	5	Economics.....	5
Chemistry.....	5	Chemistry.....	5

MECHANIC ARTS.

In the mechanic arts department the students spend the first year in the woodworking shop, this time being about equally divided between carpentry, wood turning, patternmaking, and cabinetmaking. This preliminary course is very general, and most stress is laid upon teaching principles which are applicable to all the trades. To the machinist, patternmaker, or draftsman it gives elementary but definite ideas as to the use and construction of patterns; to the carpenter it is but a stepping stone; and to the worker at the forge it gives skill in working to dimensions and in forming pieces.

No work is done in any department with the purpose of consigning it to the scrap heap as soon as the work is finished and graded. In other words, students make from the very beginning articles of intrinsic value, much of which consists of apparatus, tools, and fixtures for use in the school. Among other things that they have made for their own school are 137 lockers, 25 desks for the business training department, and the entire equipment of the mechanical drawing department, consisting of 50 drawing tables, 50 drawing boards, 50 stools, T squares, etc., the value of which is \$450. All work of whatever kind is done to working drawings, and in most cases the student works from his own blue prints.

There is an intimate connection between the drawing-room and each of the shops, and students in the various courses are given drafting which conforms to the needs of the shop in which they are working. Especial emphasis is placed upon acquiring the methods of the modern shop. Not only the "how" and "why" are taught, but the student is given as much skill as he is capable of gaining.

The wood-shop equipment consists of one planer, one jointer, one shaper, one band saw, one circular saw, six lathes that will turn any-



A. SECTION OF WOODWORKING SHOP



B. MACHINE SHOP.

thing from a penstaff to a porch column, one postborer; also a power grindstone and emery wheel. The 12 work benches are each equipped with a full set of ordinary tools, and a large number of general tools are kept in a toolroom and can be obtained by the student upon deposit of a tool check with the tool keeper. The value of the equipment in this department is \$1,900.

In the course in carpentry and joinery, after elementary instruction in the laying out of work, small articles embodying all the simple joints, such as scarf, half lap, miter, mortise, and tenon are made. Doors and windows are framed, using material which has been planed and shaped to size out of the rough. The laying out, flooring, and finally the framing, sheathing, and shingling of a small house are undertaken. A great deal of work in this shop consists of making cabinets, drawing tables, furniture, and fixtures for the school. Instruction is given in the use and care of the shaper, band and scroll saws, buzz planer, and all ordinary woodworking machinery.

The course in wood turning and patternmaking begins with the handling and sharpening of the turner's gauge, chisel, and boring tools. Much work consists of making common articles, such as vase forms, ballusters, table legs, and newel posts. These are followed by finishing articles in hardwood, such as dumb bells, towel rings, and card receivers, which bring in center turning, face-plate work, fitting, chucking, and polishing.

Beginning with simple patterns, which give an acquaintance with patternmaking processes and considerations necessary to successful molding, the work continues with split and cored patterns and those involving bench work with chisel and plane, as well as the lathe and band saws, in cutting to irregular templates. And, finally, patterns for pulleys, gear wheels, and completed machine parts are made.

Parallel with the patternmaking a course in molding is given. This is not intended to develop molders, but rather to give clear ideas as to the requirements of a successful pattern to either the patternmaker or draftsman. All the ordinary terms and methods are taught and the patterns made in the school are tried by making from them castings in plaster, lead, or white metal. These tested patterns are then sent to an iron foundry for castings for machine-shop use.

The course in cabinetmaking embodies the building of cabinets and all pieces of furniture. The student is given instruction in the building and fitting of drawers and doors, the strongest and common methods of putting together cabinets and furniture, the different joints used, how to veneer, and, lastly, how to give a good finish with stain and varnish.

The forge shop has 12 fully equipped Buffalo forges of the down-draft type. The anvils are 100 pounds in weight and are mounted on heavy wooden blocks. The cost of this equipment is \$600.

The machine-shop equipment consists of one Blaisdell-Whitcomb 14-inch lathe, one Bradford Machine Co.'s 16-inch lathe, one Cincinnati milling machine, one Steptoe shaper, one drill press, also a Universal grinder and power hack saw. A long workbench is built halfway around the shop, against the wall, and is equipped with eight heavy machinist's vises. Each boy is furnished a pair of inside and outside calipers, a hammer and a scale, and the other necessary tools are furnished from the tool room upon deposit of a tool check. The value of the equipment of this department is \$3,000.

The course in the forge and machine shop begins with a thorough explanation of all the tools and appliances and in the use and care of them. The making and keeping of good clean fires is emphasized. The necessary processes of working iron, such as bending, drawing, forming, upsetting, and scarfing are taught in the making of staples, hasps, chains, hooks, bolts, and tongs.

Welding iron and steel, using the butt, scarf, and lap joints is taught, ending in a course in the making of steel tools and the process of hardening, tempering, and annealing.

Instruction is given in the manufacture of iron and steel from the ore, so as to enable the boy to understand thoroughly the characteristics of the different materials used in the smith shop, and to help him determine at once which is best fitted for the work in hand.

It is to be understood that the boy does not simply observe and discuss the work being done, but is required to gain the handicraft for himself, under instruction which conforms as nearly as possible to the up-to-date shop. About six months are given to forge-shop work, the aim of this being to enable the student to forge and temper his own lathe and planer tools, as well as to do the regular blacksmith work. The other five months are devoted to work on the drill press, speed lathe, clipping and filing, and to the simpler milling machine.

The last year of this course is given to the accurate turning, milling, and shaping to gauge, as well as to the making of turning, driving, and pressed fits. This work is applied practically in the building of all machines and engines. In this year also a great deal of stress is laid on tool making, because a good machinist must know something about the upkeep of his tools. In this course reamers, taps, dies, as well as sample gigs, to be used in duplicate manufacturing, are made. Each student carries his work through from the beginning to the end, starting with the machine work, filing and finishing, and ending with the hardening and tempering. The work consists of clamps, bolts, V blocks, parallel strips, and ends with the complete building of drill and arbor presses and speed or wood turning lathes for the school.

The tabulated course of study for this department is as follows (in periods per week):

FORGE AND MACHINE SHOP COURSE.

FIRST YEAR.

First term:		Second term:	
Carpentry (half term).....	15	Pattern making (half term).....	15
Lathe turning (half term).....	15	Cabinetmaking (half term).....	15
Drawing.....	6	Drawing.....	6
Arithmetic.....	5	Arithmetic.....	5
Grammar and classics.....	5	Grammar and classics.....	5
Physics.....	5	Physics.....	5
History.....	5	History.....	5

SECOND YEAR.

First term:		Second term:	
Forging.....	15	Machine-shop practice.....	15
Drawing.....	6	Drawing.....	6
Rhetoric and classics.....	5	Rhetoric and classics.....	5
Algebra.....	5	Plane geometry.....	5
Chemistry.....	5	Chemistry.....	5
Civics.....	5	History of western Europe.....	5

THIRD YEAR.

First term:		Second term:	
Machine-shop practice.....	15	Machine-shop practice.....	15
Drawing.....	5	Drawing.....	5
Solid geometry.....	5	Trigonometry.....	5
Physics.....	5	English literature.....	5
History of western Europe.....	5	Economics.....	5
Chemistry.....	5	Chemistry.....	5

TEXTILE ARTS.

In the textile department the three-year course has been so arranged as to give the student a very thorough and practical knowledge of all the processes used in converting raw cotton into yarn and into fabrics of plain and elaborate design. However, the graduate is given a sound foundation in mathematics, physics, chemistry, English, and drawing, in addition to carding, spinning, weaving, dyeing, and designing. Much practical work is assigned in order that the student may meet with and learn to surmount all the difficulties that cotton-mill men have to contend with. The yarn and cloth made by the students are required to be of standard grade and are afterwards put on the market and sold. The products of this department find a ready sale, and the department is practically self-supporting.

A market is found for these goods among the retail merchants of this city. The department usually uses one 500-pound bale of cotton per annum. The raw cotton purchased at an average price of 12 cents per

pound is manufactured into twine, several grades of homespun, sheeting, toweling, and hosiery. There is of course greater margin between the raw cotton and the manufactured product in some fabrics than in others, but upon an average the finished article is usually sold for a little more than twice the original cost of the raw product. All of the output is sold except the toweling, which is used by the various schools in the local system, and the textile department is given credit for what the toweling would bring upon the market.

The equipment of the textile department, which is valued at \$8,000, consists of machinery of the best make and latest models. This has been carefully installed with the idea of making it as nearly as possible in accordance with the plans followed in mill construction in the South. The rooms are all supplied with humidifiers, enabling the degree of humidity to be regulated according to the demand of the goods being manufactured.

The carding equipment is as follows: One Kitson automatic feeder; one Kitson combination breaker and intermediate lapper; one Saco-Pettee revolving flat card; one Howard & Bullough revolving flat card; one Lowell railway head and drawing frame; one Saco-Pettee slubber, 44 spindles; one Saco-Pettee speeder, 72 spindles; grinding, stripping, and burnishing rolls, set of carders, tools, and change gears.

The spinning equipment consists of one Fales & Jencks combination warp and filling frame, 80 spindles, individual drive; one Whitin combination warp and filling frame, 80 spindles; one Draper twister, 60 spindles; one Draper spooler, 60 spindles; one Oswald lever quiller; one Tompkins reel; one 6-spindle Universal winder.

The weaving equipment consists of one Entwistle beam warper; hand-weaving room with complete equipment of six 30-harness dobby hand looms with shuttles; harness, beams, hecks, etc.; one Crompton & Knowles dobby loom; one Lowell 4-harness loom; one Draper-Northrop loom; one Crompton & Knowles plain loom; one 416-hook Crompton & Knowles Jacquard machine; one 42-inch Lowell plain loom; one complete set of Jencks hosiery knitting machines; one Standard knitting machine; one Wildman ribber; one Brinson ribber.

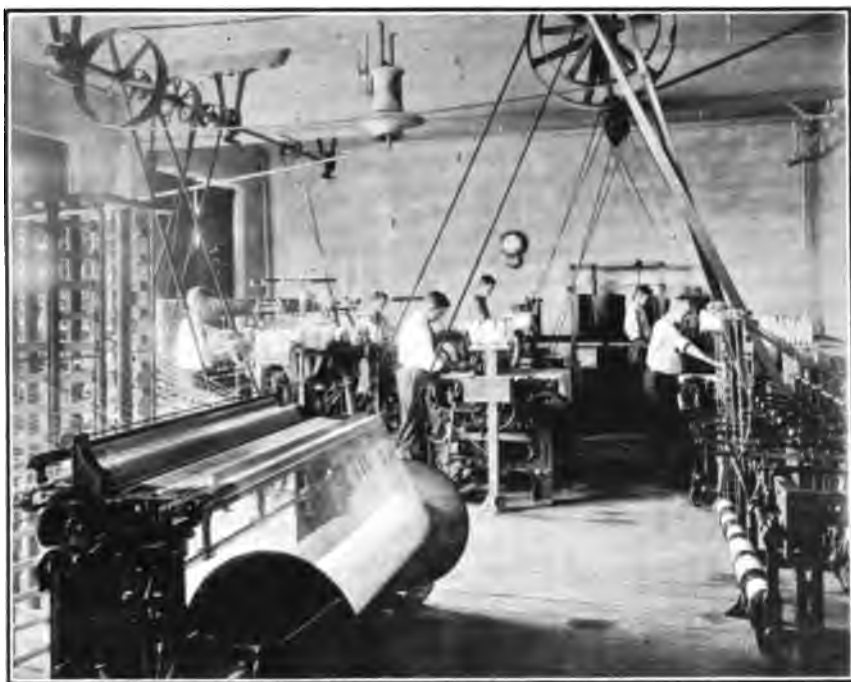
The dyeing equipment consists of one Tolhurst hydroextractor; one Elauder-Weldon skein dyeing machine; one skein mercerizing machine.

The following is a brief statement of the course in the textile department:

TEXTILE COURSE.

FIRST YEAR.

Designing.—Construction of weaves and manner of representation, explanations of the terms "warp" and "filling," ground weaves and some of their derivatives, including plain weaves, color effects on plain weaves, rib weaves, plain and figured common twill weaves, plain and fancy basket weaves, color effects on twill and basket weaves,



A. WEAVING.



B. SPINNING; TEXTILE DEPARTMENT.

broken twills, steep twills, pointed twills, skipped twills, reclining twills; also the color effect on these weaves, construction of drawing in draft and harness chain.

Weaving.—Power loom, weaving on plain and Draper looms, making fabrics of simple design.

Carding and spinning.—Operation of the machines in the carding and spinning departments, giving a general idea of the mechanical details of the work.

SECOND YEAR.

Designing.—A continuation of the work taken up in the first year, embracing curved twills, shaded twills, combination weaves, simple satins, figured satins, satin derivatives, such as double satins, satin granites, broken and figured satins, shaded satins, etc.

Weaving.—Continuing the work of the first year, taking up more complicated weaves on dobby and 4 by 1 box looms, hand weaving (using designs of simple and complex nature), dressing warp for power and hand looms, beaming it, drawing it in, reeding it, placing it on the loom, study of motions on the loom with drawings and lectures.

Carding and spinning.—More practice in the operation of the machines, drawings made of the various parts, lectures.

THIRD YEAR.

Designing.—Continuation of work of second year, embracing honey-comb weaves, dress goods, novelty weaves, weaves with an extra warp and filling, figured dress goods, and double cloth. Jacquard work, description of the Jacquard machine, simple types of machines, making Jacquard designs.

Fabric analysis.—The dissecting of cloth for the purpose of finding the weave, counts of yarn used, per cent of take-up and shrinkage, ends and picks per inch, total ends in warp, width in reed, etc., reproducing cloths from samples.

Weaving.—More weaving on power loom, cloth finishing and loom fixing, drawing motions, recitations and lectures, cloth calculations.

Carding and spinning.—Work to be similar to that of the year before, but taking up calculations and also work in changing machines from one number hank to another, recitations and lectures.

Dyeing.—Experiments in dyeing yarn, taking up the various dyestuffs, their mode of application to the fiber, effects of developing, after treatment, etc. Also doing any dyeing that may be required for weaving purposes.

The tabulated course of study in this department is as follows (in periods per week):

FIRST YEAR.

First term:		Second term:	
Designing.....	7	Designing.....	7
Weaving.....	4	Weaving.....	4
Carding and spinning.....	4	Carding and spinning.....	4
Drawing.....	6	Drawing.....	6
Arithmetic.....	5	Arithmetic.....	5
Grammar.....	5	Grammar.....	5
Physics.....		Physics.....	5
History.....		History.....	5

SECOND YEAR.

First term:		Second term:	
Designing.....	4	Designing.....	4
Weaving.....	6	Weaving.....	8
Carding and spinning.....	6	Carding and spinning.....	4
Drawing.....	6	Drawing.....	6
Rhetoric.....	5	Rhetoric.....	5
Algebra.....	5	Plane geometry.....	5
Chemistry.....	5	Chemistry.....	5
Civics.....	5	History of western Europe.....	5

THIRD YEAR.

First term:		Second term:	
Designing.....	4	Designing.....	4
Fabric analysis.....	2	Fabric analysis.....	2
Weaving.....	6	Weaving.....	6
Carding and spinning.....	6	Carding and spinning.....	6
Dyeing.....	2	Dyeing.....	2
Drawing.....	6	Drawing.....	6
Solid geometry.....	5	Trigonometry.....	5
Physics.....	5	English literature.....	5
History of western Europe.....	5	Economics.....	5
Chemistry.....	5	Chemistry.....	5

BUSINESS TRAINING.

In the business training department the three-year course (which is open to both boys and girls) has been so arranged as to include: First, the academic work of the school; second, the various commercial subjects found in the courses of the most approved of the modern commercial schools; third, typewriting, shorthand, and bookkeeping.

In the typewriting department the student is taught to use the touch method (that is, operating the machine without looking at the keyboard), and is given work in writing from plain print copy, shorthand notes, and dictation. Speed, accuracy, neatness, and form of work are stressed. The pupil is given thorough instruction in billing, manifolding, tabulating, the use of the letter press and mimeograph, and cleaning, adjusting, and oiling the various machines.

The first year of the course in shorthand is devoted to the study of the principles and to dictation work in business letters. For this purpose a dictation book is used which contains systematically arranged letters of all the business man is engaged in. The second year is devoted to expert work in dictation and transcripts. The pupil is required to report and transcribe newspaper and magazine articles, essays, lectures, and sermons, legal and court matter. Special attention is given to transcripts, indexing notes, letter filing, handling business correspondence, and general office usefulness.

The textbook used in bookkeeping teaches the pupil self-reliance and develops his thinking powers, gradually and logically develops the principles of the subject, is complete in instruction, and abounds in illustrations. The writing and filing of commercial papers is fully treated. Single and double entry bookkeeping is thoroughly illustrated and explained. The first year's work is devoted to theory and business practice. Particular attention is given to journalizing, posting, taking trial balances, making financial statements, and closing the ledger.

The second year is devoted to actual business work, where the pupil conducts a business of his own, trades with other pupils, does business with the school banks, retail, wholesale, commission, jobbing, and freight offices. After a pupil conducts a business of his own for some time, he is placed in the various offices of the school, and has complete charge of the different lines of work until he becomes familiar with every detail of office work. Pupils in the business department organize and dissolve partnerships, organize joint-stock companies, corporations, and banks according to law, elect directors and officers, declare dividends, make assessments, etc.

The subject of spelling, which is too often neglected, is stressed in this department. In letter writing the pupil is taught to properly construct, arrange, paragraph, and punctuate a letter; and instruction is given on the best forms and usages of business and social letters. Penmanship is one of the most important branches of the business training course, a legible hand being a business asset of value. Instruction in commercial arithmetic and rapid calculation is given; while through the study of commercial law the pupil becomes familiar with the fundamental principles of constitutional, statute, and common law, with the general law pertaining to all forms of negotiable and nonnegotiable papers, such as checks, notes, receipts, drafts, liens, leases, deeds, mortgages, and contracts, and the laws of bailment, carriers, partnerships, insurance associations, joint-stock companies, and corporations. The pupil is made familiar with parliamentary usage, and from the study of commercial geography he learns something of the source of supply, process of manufacture, cost of commodities, and of the world's great industries, including farm products and the area of their production, mines and their location, manufactures, exports, imports, and transportation facilities.

The equipment of the business training department is up to date, having in addition to special desks made for this particular work in the shops of this school, well-regulated freight, retail, and wholesale offices, jobbing houses, and banks, all using books similar to those used in like concerns in the city, filing cases, comptometer,

adding machines, and various makes of standard typewriters. The value of the equipment of this department is \$2,100.

The tabulated course of study is as follows (in periods per week):

BUSINESS COURSE.

FIRST YEAR.

First term:		Second term:	
Arithmetic.....	5	Arithmetic.....	5
English grammar and classics....	5	English grammar and classics....	5
United States history.....	5	Algebra.....	5
Physics.....	5	Physics.....	5
Spelling, orthoepy, and etymology.....	5	Spelling, orthoepy, and etymology.....	5
Rapid calculation (half period).....	5	Rapid calculation (half period).....	5
Penmanship.....	5	Theory bookkeeping and business practice.....	8
Theory bookkeeping.....	8		

SECOND YEAR.

First term		Second term:	
Algebra.....	5	Plane geometry.....	5
Rhetoric and classics.....	5	Rhetoric and classics.....	5
Civics.....	5	Chemistry.....	5
Chemistry.....	5	European history.....	5
Commercial geography.....	5	Typewriting.....	5
Shorthand.....	3	Shorthand.....	3
Typewriting.....	5	Actual business bookkeeping....	8
Actual business bookkeeping....	8		

THIRD YEAR.

First term:		Second term:	
Chemistry.....	5	Chemistry.....	5
Physics.....	5	Trigonometry.....	5
European history.....	5	Economics and industrial history.....	5
Solid geometry.....	5	English readings and literature..	5
Commercial law.....	5	Parliamentary law.....	5
Shorthand.....	3	Shorthand.....	3
Typewriting.....	5	Letter filing, mimeograph work, and letterpress (along with other work).	
Business customs and office practice, letter filing, and manifold (along with other work).			

Before a pupil can graduate, he must not only complete the three-year course in the academic subjects and trades courses, but he must take a position six weeks before the date of his graduation and must "make good," so to speak, under ordinary commercial and industrial conditions. Suitable work is secured for the pupils regardless of the compensation, and reports are received daily on the efficiency of their labor.

There has been a gradual increase in attendance from the beginning. The enrollment four years ago was less than 100, while at

present it is 156. In the first graduating class there were only 9 members; in the class of 1912 there were 20; and there are 42 in the class to be graduated next July. There have been, to date, 62 graduates and, with 3 exceptions, they are pursuing lines of work begun in this school. At first they do not receive high salaries, but promotion has been rapid and certain. The class of 20 last year found places to work immediately after graduation at salaries ranging from \$35 to \$50 per month. The 8 members of the class who were graduated four years ago are receiving salaries ranging from \$75 to \$125 per month. It must be borne in mind, too, that not one of these is more than 22 years of age. The combined salaries of the last class to graduate would maintain the school for the present year. The value of the training in this school is not represented by its graduates only, for there are some who were unable, for financial and other reasons, to complete the course who are showing in their various lines of work the effect of even partial training in this school. The average cost of maintaining the school is about \$60 per capita per annum.

After all, it must be said that the character and the spirit of the teacher has much to do with the efficiency of any school. A cold, prescribed course, however meritorious, will not and can not hold pupils; but with a course that in itself appeals to the child, the warm, big-hearted teacher may accomplish results far in excess of the teacher who proceeds purely along mechanical lines.

Effort has been made to secure teachers for this school who have had both professional training and experience in business or in the industries. Those teachers in close touch with practical life are more likely to be in sympathy with the ideals of this school. It is essential to success that those who are to work in the school should believe in it. Besides, no one is entirely qualified to give instruction and direction in the industries who has not been actually employed in them. In so far as it is possible to secure them, we employ teachers who happily combine both the theoretical and practical; that is, have had scientific training and practical experience.

The principal of the school, who is also the head of the business training department, was graduated from a normal school, has had several years' experience as a teacher, and for five years was stenographer, bookkeeper, accountant, etc.; he also spent one and a half years in the engineering department of the Frisco Railroad.

The head of the textile department was graduated from the Georgia School of Technology and for five years was employed in different cotton mills of his State as paymaster, assistant superintendent, etc.

The head of the mechanic arts department has his degree from the Alabama Polytechnic Institute and was a teacher in one of the district agricultural and mechanical colleges of this State before his election here.

The department of home economics is under the only woman in the faculty. She received her special training at Pratt Institute and taught several years in New York State before coming here.

The teacher of science and mathematics holds his degree from Brown University, and besides having had several years' experience as a teacher was employed for some time in the dyeing department of a cotton mill.

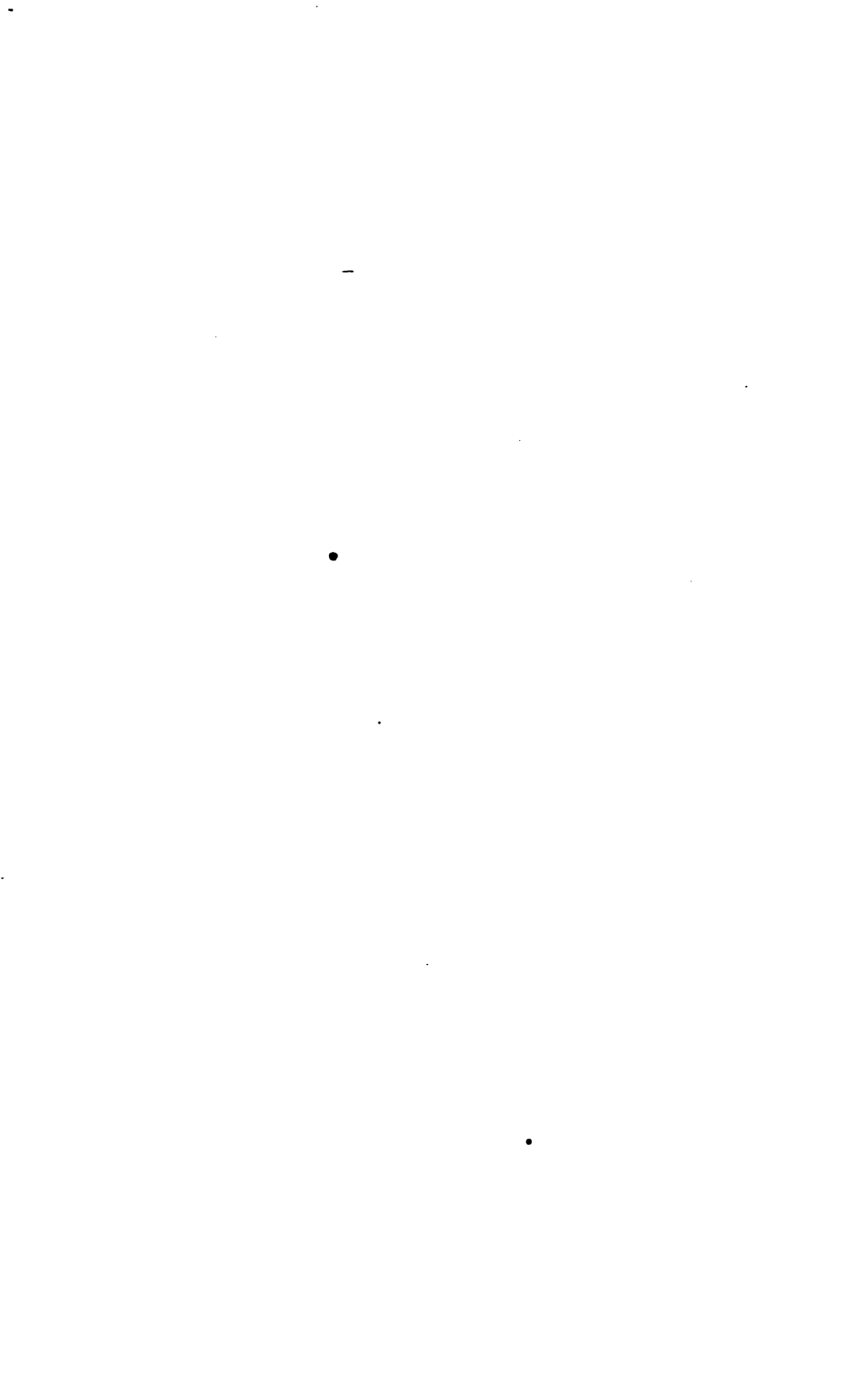
The head of the department of English and history was educated at the University of Georgia and Princeton University. Besides his three years' experience as a teacher, he was in the real estate business for more than a year.

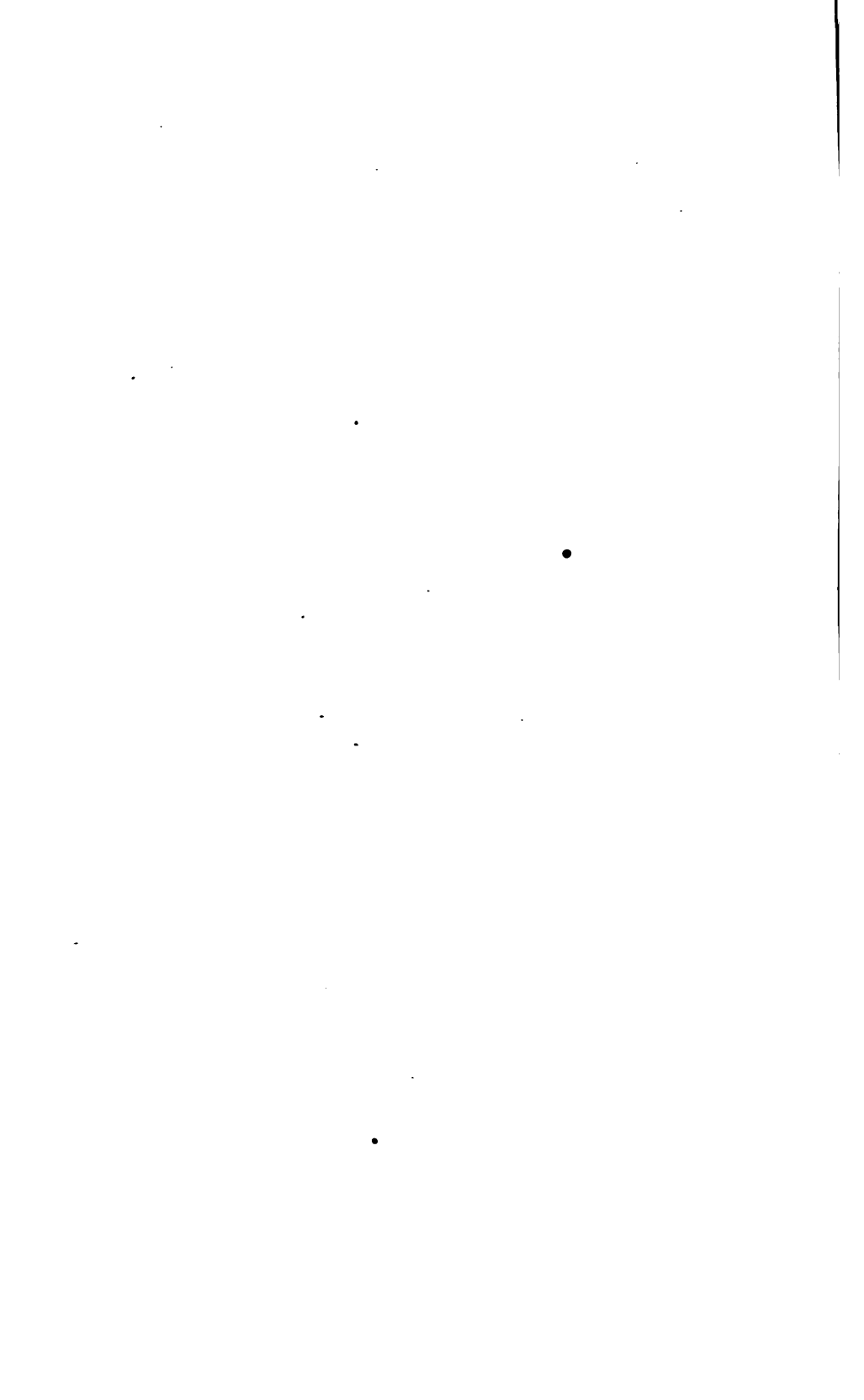
The salary of a teacher of this school is \$200 more per annum than that of a teacher in the academic high school. This difference is made because of the longer school year. Teachers do not object to the longer school year when it is accompanied by an increase in salary.

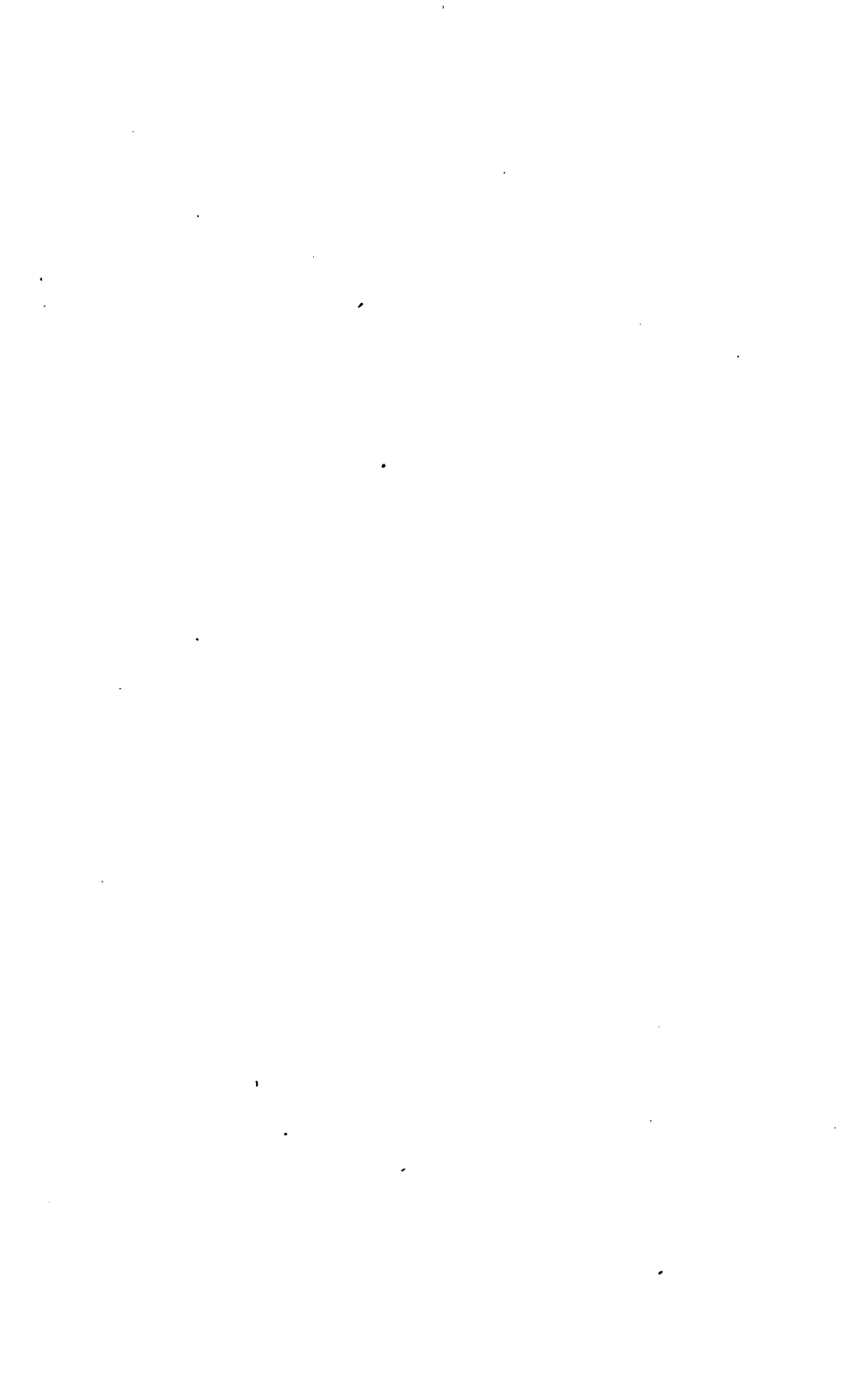
The health and general physical condition of pupils and teachers of this school, notwithstanding the long school day and long school year, are as fine as may be found anywhere, due undoubtedly to the change of work during the day from mental to manual labor and to the exercise in the pure open air.

The attendance at the traditional high school has not been materially diminished by the establishment of this new school. The work of the high school is really more satisfactory than formerly, for only those are attending this school who choose the kind of education that it offers. These desire to learn something of the languages rather than to take one of the trades courses offered in the other school. Pupils who are preparing to take classic college courses usually come here, while those who are preparing for higher technical schools or who wish to learn a trade along with their regular school work usually go to the Industrial High School. It is entirely safe to say that two-thirds of the students at the Industrial High School would not continue beyond the grammar-school grades if it were not for the vocational courses offered. Indeed, there is strong reason for believing that a goodly number of these would not have even completed the grammar-school grades without such incentive.

The vocational courses thus far introduced in this school were selected to meet local conditions and needs. There is now a strong demand for a course in practical electricity and also one in agriculture. The growing demand for the former is due to the development in the last two or three years in this vicinity of greater water power on the Chattahoochee River, and the latter because of increased interest in recent years in intelligent and scientific agriculture in this section.







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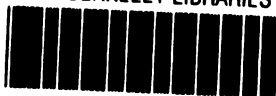
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